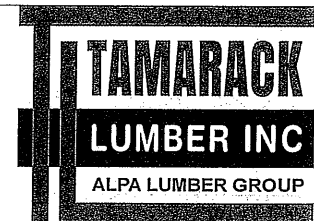


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	36
J1DJ	14-00-00	9 1/2" NI-40x	2	12
J2	10-00-00	9 1/2" NI-40x	1	12
J3	6-00-00	9 1/2" NI-40x	1	9
J4	4-00-00	9 1/2" NI-40x	1	3
J5	2-00-00	9 1/2" NI-40x	1	2
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.5/9.5
3	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
9	H1	IUS2.56/9.5
3	H3	HUS1.81/10



FROM PLAN DATED: AUG 2020

BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

MODEL: 38-7

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV

REVISION: AJ

NOTES:

REFER TO THE **NORDIC INSTALLATION**
GUIDE FOR PROPER STORAGE AND
INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK REI** I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC TIL** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

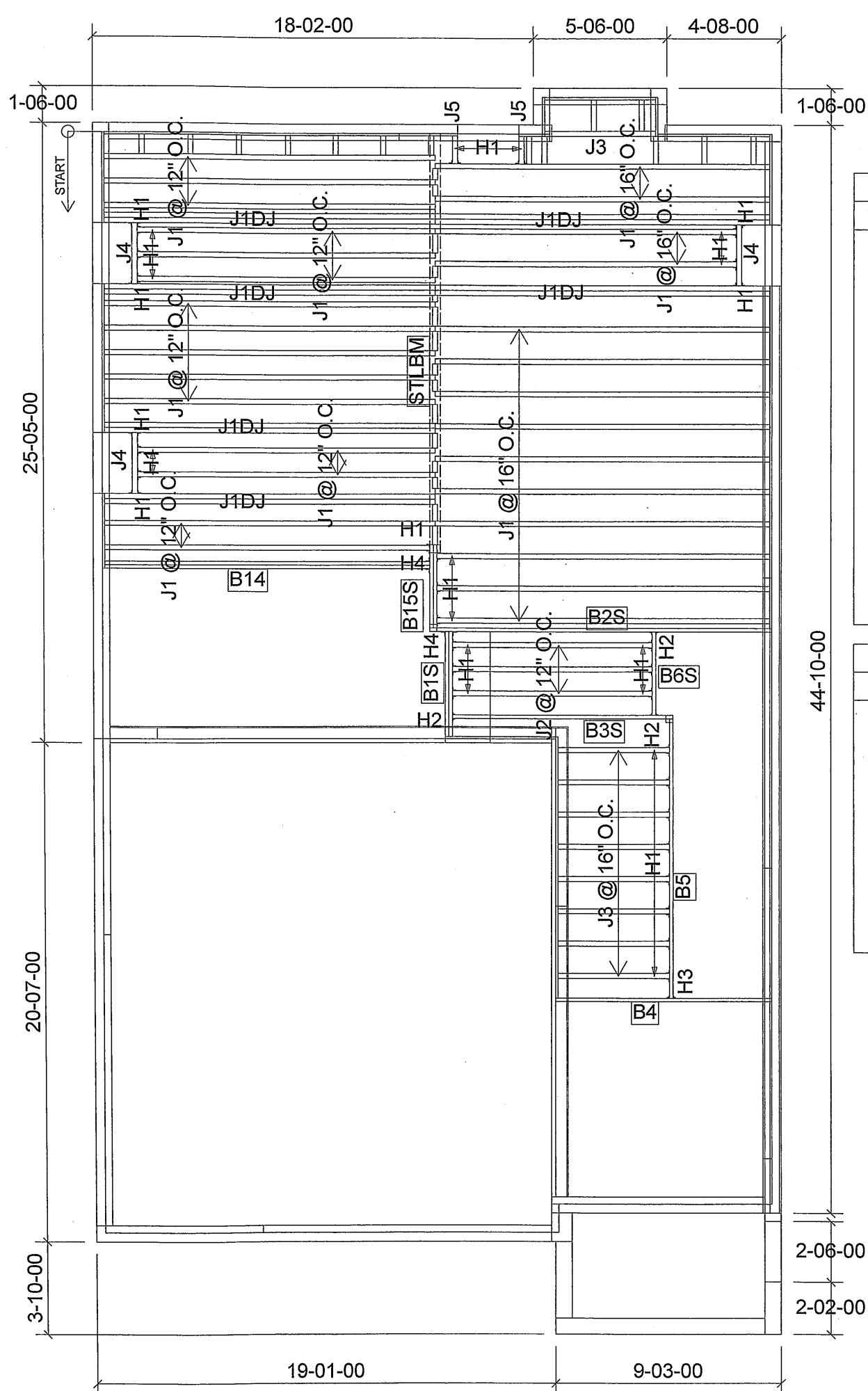
DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-06-04

1st FLOOR



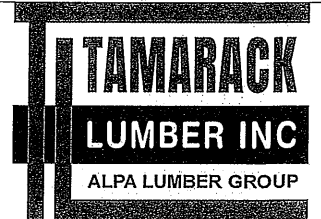
Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	29
J1DJ	14-00-00	9 1/2" NI-40x	2	12
J2	10-00-00	9 1/2" NI-40x	1	3
J3	6-00-00	9 1/2" NI-40x	1	9
J4	4-00-00	9 1/2" NI-40x	1	3
J5	2-00-00	9 1/2" NI-40x	1	2
B2S	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3S	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1S	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
9	H1	IUS2.56/9.5
2	H2	HUS1.81/10
1	H2	HUS1.81/10
1	H3	HUS1.81/10
1	H4	HGUS410
1	H4	HGUS410

DATE: 2021-06-05

1st FLOOR

SUNKEN OPTION



FROM PLAN DATED: AUG 2020

BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

MODEL: 38-7

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV

REVISION: AJ

NOTES:

REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK RI** I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

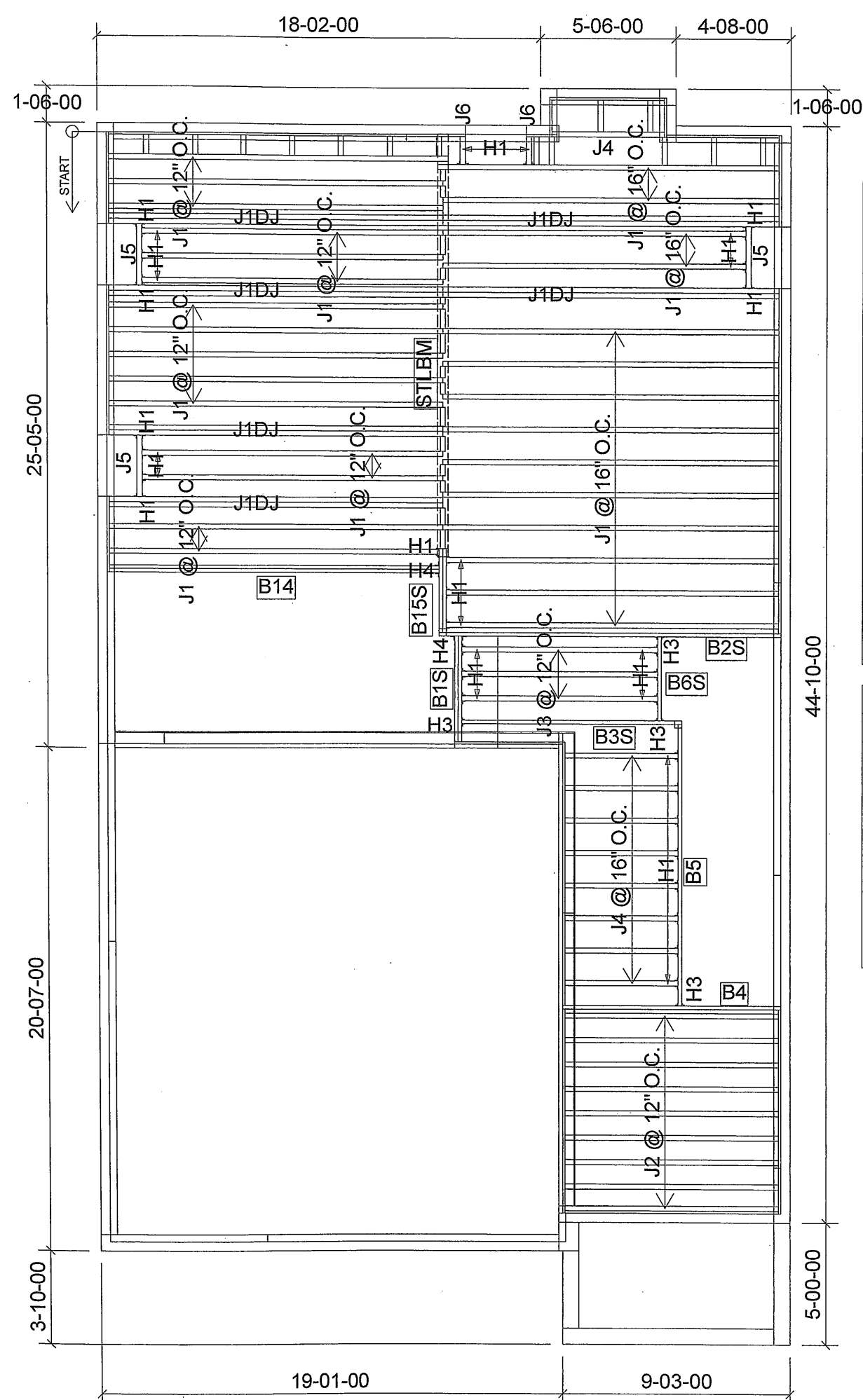
DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

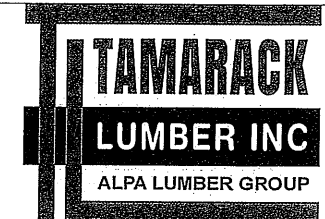
TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	29
J1DJ	14-00-00	9 1/2" NI-40x	2	12
J2	10-00-00	9 1/2" NI-40x	1	9
J3	8-00-00	9 1/2" NI-40x	1	3
J4	6-00-00	9 1/2" NI-40x	1	9
J5	4-00-00	9 1/2" NI-40x	1	3
J6	2-00-00	9 1/2" NI-40x	1	2
B2S	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3S	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1S	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B15S	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/9.5
7	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
9	H1	IUS2.56/9.5
3	H3	HUS1.81/10
1	H3	HUS1.81/10
1	H4	HGUS410
1	H4	HGUS410



FROM PLAN DATED: AUG 2020

BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

MODEL: 38-7

ELEVATION: A, B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV

REVISION: AJ

NOTES:

REFER TO THE **NORDIC INSTALLATION**
GUIDE FOR PROPER STORAGE AND
INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK RI** I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC T** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

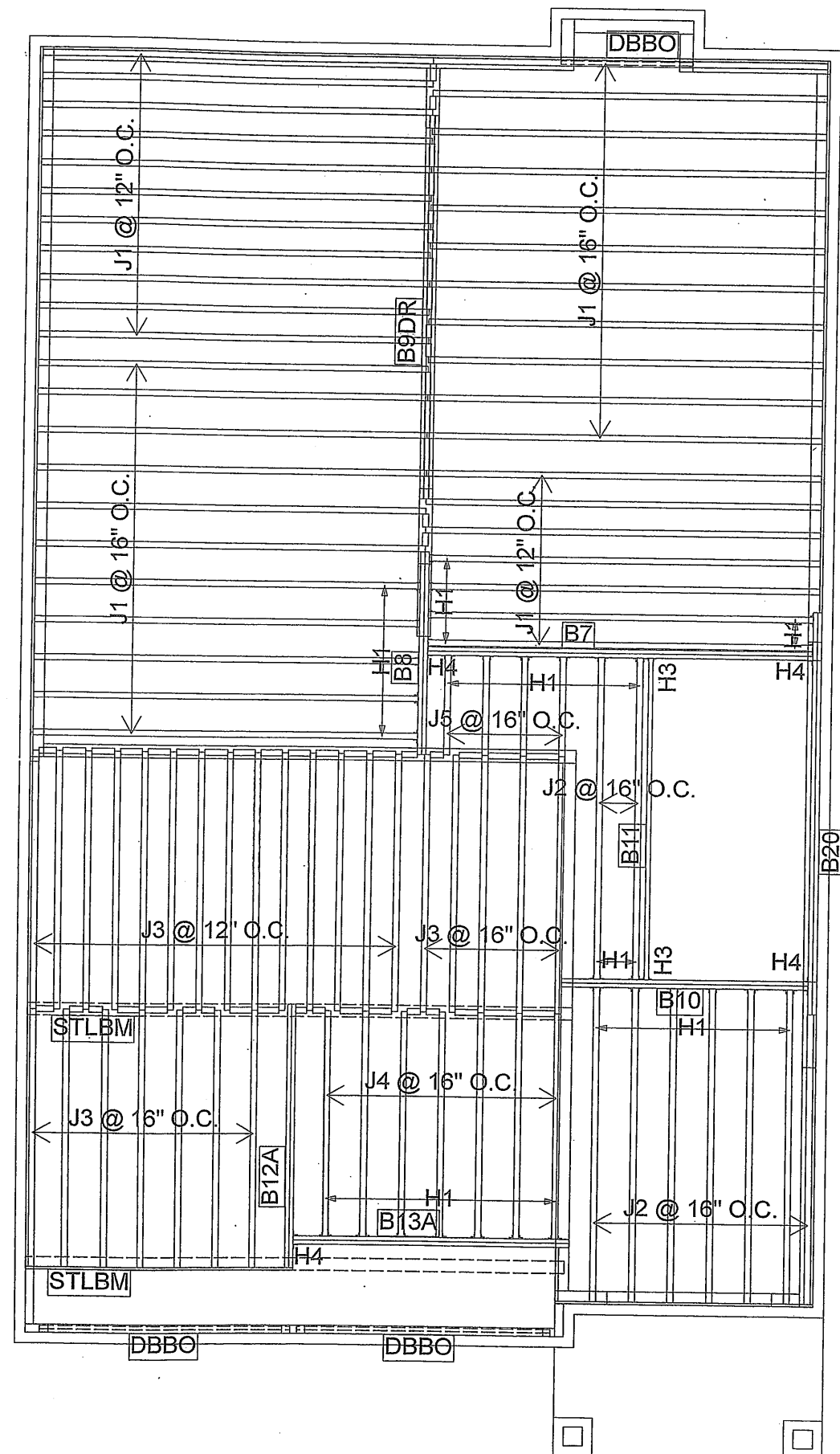
DEAD LOAD: 15.0 lb/ft²TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2021-06-05

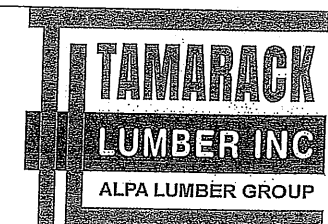
1st FLOOR

SUNKEN MUDROOM



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	40
J2	12-00-00	9 1/2" NI-40x	1	9
J3	10-00-00	9 1/2" NI-40x	1	26
J4	8-00-00	9 1/2" NI-40x	1	7
J5	4-00-00	9 1/2" NI-40x	1	4
B20	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13A	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
32	H1	IUS2.56/9.5
2	H3	HUS1.81/10
4	H4	HGUS410



FROM PLAN DATED: AUG 2020

BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

MODEL: 38-7

ELEVATION: A

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV

REVISION:

NOTES:
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 & REQ'D UNDER INTERIOR UNIFORM LOA BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATE LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK I-JOIST BLOCKING ALONG BEARING ANI RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDIN **DUCT CHASE** AND **FIELD CUT OPENING** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

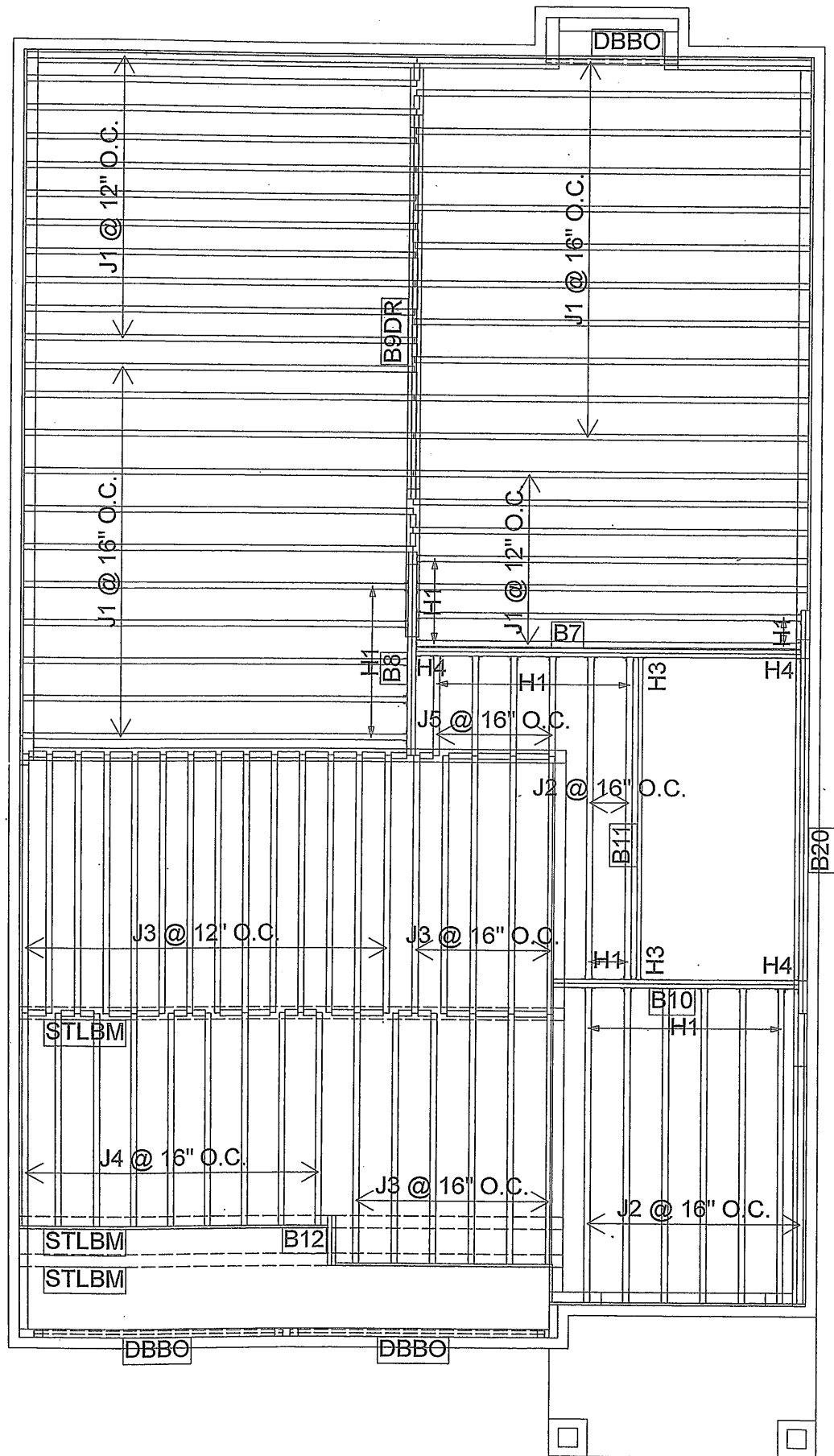
DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

DATE: 2020-10-20

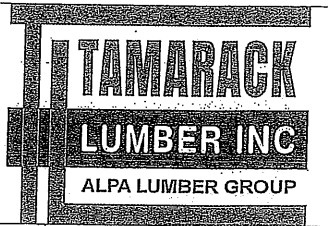
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	40
J2	12-00-00	9 1/2" NI-40x	1	9
J3	10-00-00	9 1/2" NI-40x	1	25
J4	8-00-00	9 1/2" NI-40x	1	9
J5	4-00-00	9 1/2" NI-40x	1	4
B20	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
25	H1	IUS2.56/9.5
2	H3	HUS1.81/10
3	H4	HGUS410



FROM PLAN DATED: AUG 2020

BUILDER: ROYALPINE HOMES

SITE: CENTREFIELD

MODEL: 38-7

ELEVATION: B, C

LOT:

CITY: RICHMOND HILL

SALESMAN: WILL GARCIA

DESIGNER: LBV

REVISION: lbv

NOTES:
 REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 REQ'D UNDER INTERIOR UNIFORM LOADING BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC TILE** APPLICATION AS PER O.B.C 9.30.6.

LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

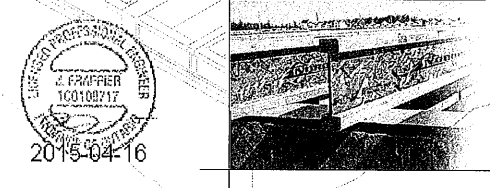
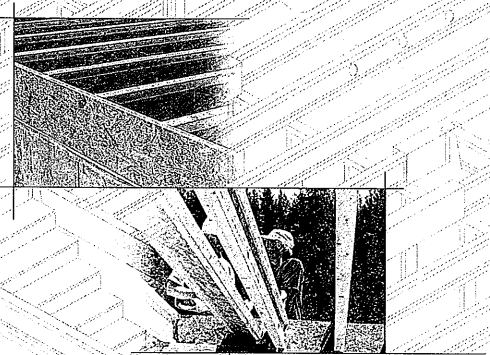
DATE: 2020-10-20

2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED

INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS



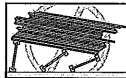
Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never stack building materials over unbraced I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

WARNING

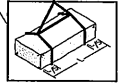
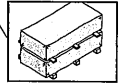
I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

Avoid Accidents by Following these Important Guidelines:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joist.

STORAGE AND HANDLING GUIDELINES

- Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
- Store, stack, and handle I-joists vertically and level only.
- Always stack and handle I-joists in the upright position only.
- Do not store I-joists in direct contact with the ground and/or flatwise.
- Protect I-joists from weather, and use spacers to separate bundles.
- Bundled units should be kept intact until time of installation.
- When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
- Do not handle I-joists in a horizontal orientation.
- NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CCB-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA C86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans On centre spacing				Multiple spans On centre spacing			
		12'	16'	19.2'	24'	12'	16'	19.2'	24'
9-1/2"	Ni-20	15-1'	14-2'	13-9"	13-5"	16-3'	15-4'	14-10"	14-7"
	Ni-40x	16-1'	15-2'	14-8"	14-9"	17-5'	16-5'	15-10"	15-5"
	Ni-60	16-3'	15-4'	14-10"	14-11"	17-7'	16-7'	15-10"	15-5"
	Ni-70	17-1'	16-1'	15-6"	15-7"	18-7'	17-4'	16-9"	16-10"
	Ni-80	17-3'	16-3'	15-8"	15-9"	18-10"	17-6"	16-11"	17-0"
11-7/8"	Ni-20	16-11"	16-0"	15-5"	15-6"	18-4'	17-3'	16-8"	16-7"
	Ni-40x	18-1'	17-0"	16-5"	16-6"	20-0"	18-9"	17-9"	17-7"
	Ni-60	18-4'	17-3'	16-7"	16-9"	20-3'	18-9"	18-0"	18-1"
	Ni-70	19-6'	18-0"	17-4"	17-5"	21-6'	19-11"	19-0"	19-1"
	Ni-80	19-9'	18-3'	17-6"	17-7"	21-9'	20-2"	19-3"	19-4"
14"	Ni-90x	20-2'	18-7"	17-11"	17-11"	22-3'	20-7"	19-8"	19-9"
	Ni-20x	20-4'	18-9"	17-11"	18-0"	22-5'	20-9"	19-10"	19-11"
	Ni-40x	20-1'	18-7"	17-10"	17-11"	22-2'	20-6"	19-8"	19-4"
	Ni-60	20-5'	18-11"	18-1"	18-2"	22-7'	20-11"	20-0"	20-1"
	Ni-70	21-7'	20-0"	19-1"	19-2"	23-10"	21-1"	21-2"	21-2"
16"	Ni-80	21-11"	20-3"	19-4"	19-5"	24-3'	22-5"	21-5"	21-6"
	Ni-90	22-5'	20-8"	19-9"	19-10"	24-9'	22-10"	21-10"	21-10"
	Ni-90x	22-7'	20-11"	19-11"	20-0"	25-0"	23-1"	22-0"	22-2"
	Ni-60	22-3'	20-8"	19-9"	19-10"	24-7'	22-5"	21-9"	21-10"
	Ni-70	23-6'	21-9"	20-9"	20-10"	26-0"	24-0"	22-11"	23-0"

CCMC EVALUATION REPORT 13032-R

WEB STIFFENERS

RECOMMENDATIONS:

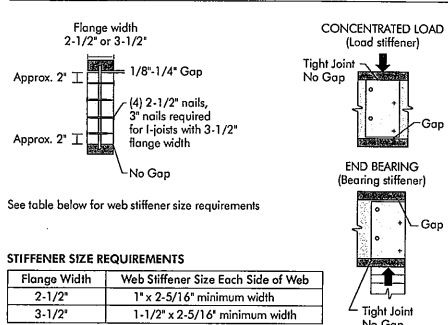
■ A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.

■ A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.

■ A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

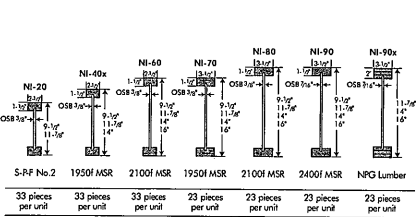


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES

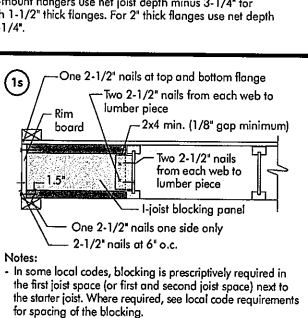
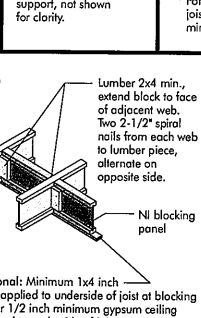
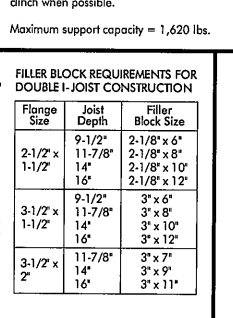
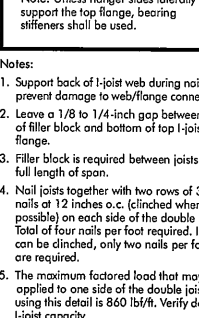
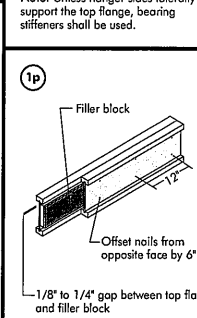
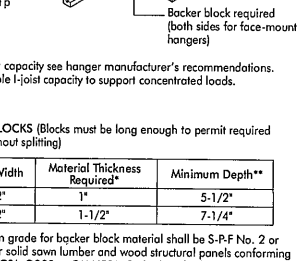
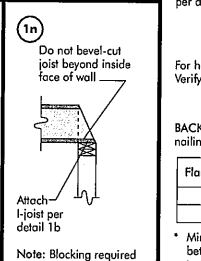
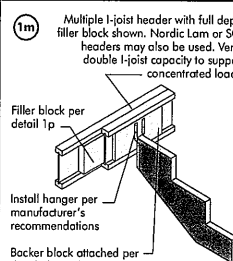
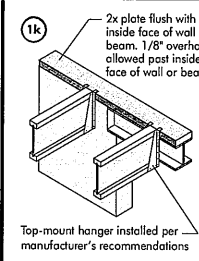
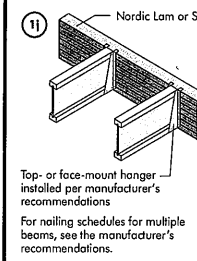
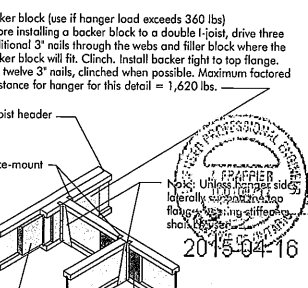
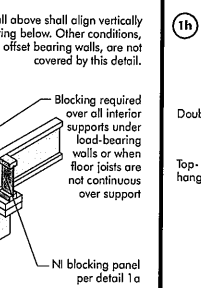
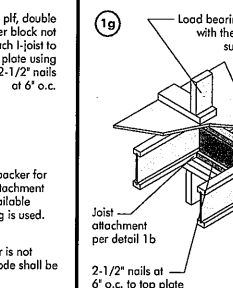
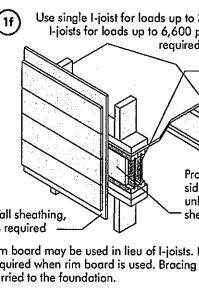
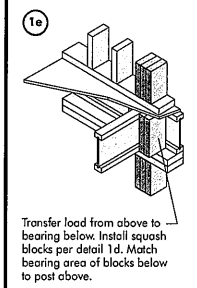
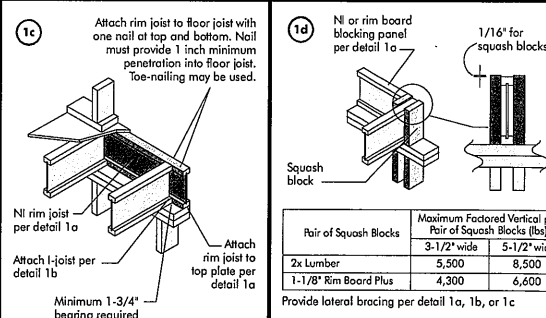
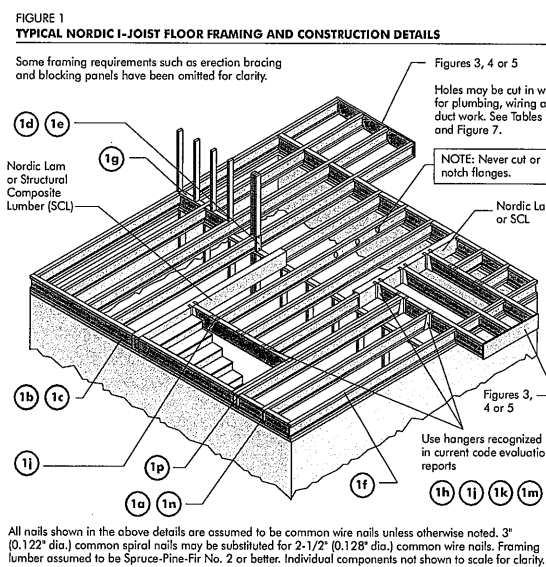
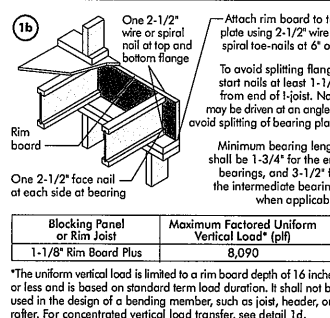
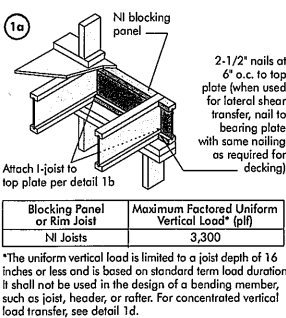


Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from the selection of the finished product, reflects our commitment to quality.

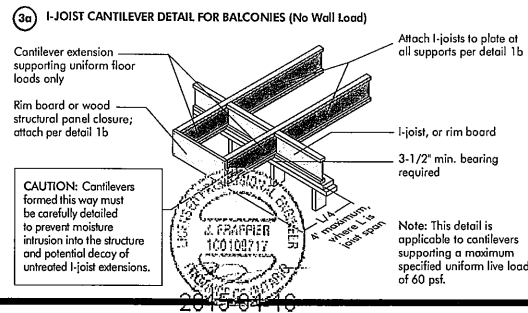
Nordic Engineered Wood I-joists use only finger-jointed lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.

INSTALLING NORDIC I-JOISTS

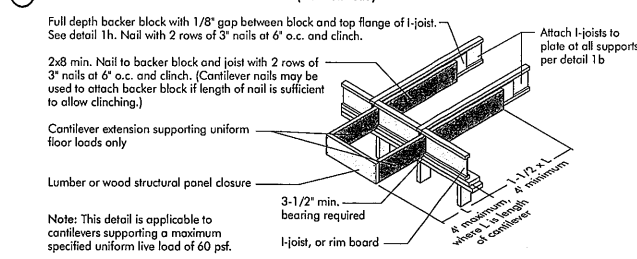
- Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, supplier.
- Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
- Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- I-joists must be anchored securely to supports before floor sheathing is attached, and supports for I-joists must be level.
- Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
- When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
- Leave a 1/16-inch gap between the I-joist end and a header.
- Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
- Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
- Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
- For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
- Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and on I-joist-compatible depth selected.
- Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
- If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
- Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.



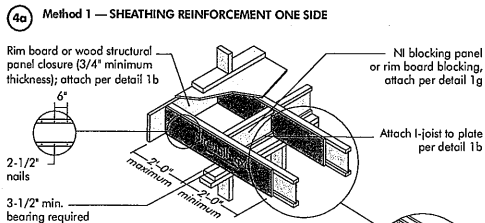
CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)



3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



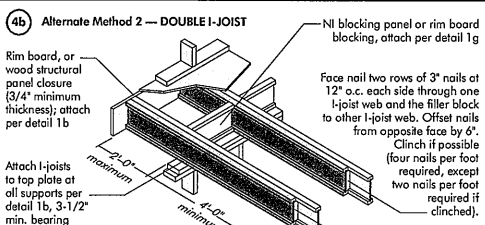
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joint with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joint to plate at all supports per detail 1b. Verify reinforced I-joint capacity.



Block I-joints together with filler blocks for the full length of the reinforcement. For I-joint flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible.

FIGURE 4 (continued)



CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	N	2	N	N	N	2	N	N	N	2
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
11-7/8"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
14"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
16"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1

- N = No reinforcement required.
- Ni reinforced with 3/4" wood structural panel on one side only.
- Ni reinforced with 3/4" wood structural panel on both sides, or double I-joint.
- Try a deeper joist or closer spacing.
- Maximum design load shall be 15 psf of dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
- For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists between the opening's cripple studs may be required.
- Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

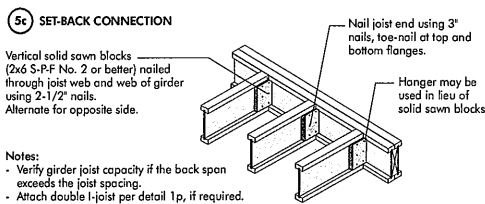
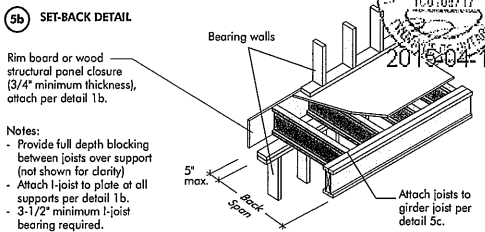
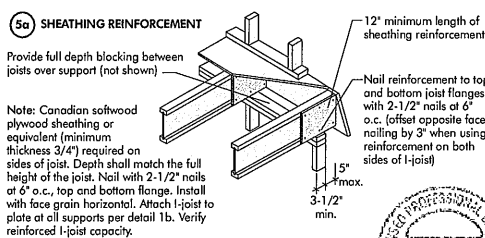


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X	2	X	X	X
11-7/8"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X
	34	N	2	X	X	1	X	X	X	1	X	X	X
14"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X
	34	N	2	X	X	1	X	X	X	1	X	X	X
16"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X
	34	N	2	X	X	1	X	X	X	1	X	X	X

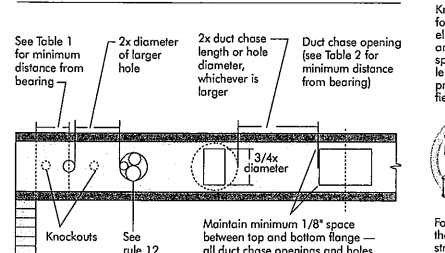
- N = No reinforcement required.
- Ni reinforced with 3/4" wood structural panel on one side only.
- Ni reinforced with 3/4" wood structural panel on both sides, or double I-joint.
- Try a deeper joist or closer spacing.
- Maximum design load shall be 15 psf of dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
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- Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

FIGURE 7 FIELD-CUT HOLE LOCATOR



A knockout is NOT considered a hole, may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances between holes.

Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joint. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the webs.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joint.

TABLE 1

LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)																Span adjustment factor
		Round hole diameter (in.)																
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4		
9-1/2"	Ni-20	0-7	1-6	2-10	4-3	5-8	6-0	...	...	...	...	...	...	...	...	...	13-6
	Ni-40	0-7	1-6	2-10	4-3	5-8	6-0	...	...	...	...	...	...	...	...	...	14-6
	Ni-60	1-3	2-6	4-0	5-4	7-0	7-5	...	...	...	...	...	...	...	...	...	14-11
	Ni-70	2-0	3-4	4-9	6-3	8-0	8-4	...	...	...	...	...	...	...	...	...	15-7
	Ni-80	2-9	4-0	5-0	6-2	8-0	8-8	...	...	...	...	...	...	...	...	...	16-9
11-7/8"	Ni-20	0-7	0-8	1-0	2-4	3-8	4-0	5-0	6-6	7-9	...	...	...	...	...	...	15-6
	Ni-40	0-7	0-8	1-3	2-8	4-0	4-4	5-6	7-4	8-4	...	...	...	...	...	...	16-6
	Ni-60	0-7	1-8	3-0	4-3	5-9	6-0	7-3	8-10	10-0	...	...	...	...	...	...	17-5
	Ni-70	1-3	2-6	4-0	5-4	6-9	7-2	8-4	10-0	11-2	...	...	...	...	...	...	17-9
	Ni-80	1-6	2-10	4-2	5-4	7-0	7-5	8-6	10-3	11-4	...	...	...	...	...	...	17-11
14"	Ni-20	0-7	0-8	1-3	3-2	4-10	5-4	6-9	8-9	10-2	...	...	...	...	...	...	18-0
	Ni-40	0-7	0-8	0-8	1-0	2-4	2-9	3-9	5-2	6-0	6-6	8-3	10-2	...	...	...	17-11
	Ni-60	0-7	0-8	1-3	3-0	4-3	4-8	5-8	7-2	8-0	8-8	10-4	11-9	...	...	...	18-2
	Ni-70	0-8	1-10	3-3	4-5	5-10	6-2	7-3	8-9	9-9	10-4	12-0	13-5	...	...	...	19-2
	Ni-80	0-7	0-8	1-3	3-0	4-3	4-8	5-8	7-2	8-0	8-8	10-4	12-0	13-5	...	...	19-5
16"	Ni-20	0-7	0-8	0-10	2-5	3-2	4-5	5-5	7-5	8-8	9-4	11-4	12-1	...	...	...	19-9
	Ni-40	0-7	0-8	0-8	1-0	2-4	2-9	3-9	5-2	6-0	6-6	8-3	10-2	...	...	...	20-9
	Ni-60	0-7	0-8	1-3	3-0	4-3	4-8	5-8	7-2	8-0	8-8	10-4	12-0	13-5	...	...	20-9
	Ni-70	0-7	1-0	2-3	3-6	4-10	5-3	6-3	7-8	8-4	9-2	10-8	12-0	12-4	14-0	15-6	21-2	
	Ni-80	0-7	1-3	2-4	3-10	5-3	5-6	6-6	8-0	9-0	9-5	11-0	12-3	12-9	14-5	16-0	21-2	
18"	Ni-20	0-7	0-8	0-8	1-0	2-4	2-9	3-9	5-2	6-0	6-6	8-3	10-2	...	...	...	20-9
	Ni-50s	0-7	0-8	0-9	2-0	3-6	4-0	5-0	6-9	7-9	8-4	10-7	11-6	12-0	13-0	14-0	21-10	



Refer to the *Installation Guide for Residential Floors* for additional information.
CCMC EVALUATION REPORT 13032-R

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

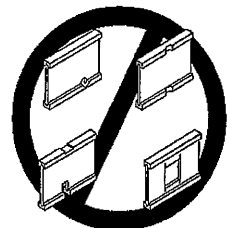
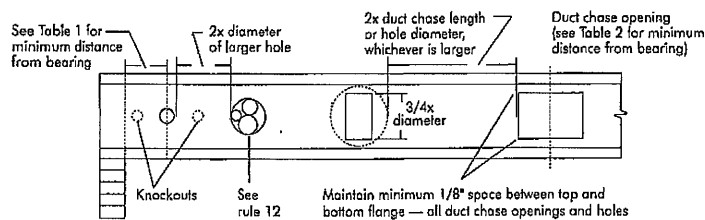
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)														
		Round Hole Diameter (in.)														
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-8"	6-3"	8-0"	8-4"	---	---	---	---	---	---	---	---	---
	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---	---	---	---
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---	---	---	---
	NI-60	0-7"	1-8"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---	---	---	---
	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---	---	---	---
	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---	---	---	---
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-11"	---	---	---	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---	---	---	---
	NI-60	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	8-3"	10-2"	---	---	---	---	---
	NI-70	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-5"	---	---	---
	NI-80	0-10"	2-0"	3-4"	4-9"	6-2"	6-5"	7-6"	9-0"	10-0"	10-8"	12-4"	13-9"	---	---	---
16"	NI-20	0-7"	0-8"	0-10"	2-5"	4-0"	4-5"	5-9"	7-5"	8-8"	9-4"	11-4"	12-11"	---	---	---
	NI-40x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	7-3"	8-5"	9-2"	---	---	---	---	---
	NI-60	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-6"	6-4"	7-0"	8-5"	9-8"	10-2"	12-2"	13-9"
	NI-70	0-7"	1-0"	2-3"	3-6"	4-10"	5-3"	6-3"	7-8"	8-6"	9-2"	10-8"	12-0"	12-4"	14-0"	15-6"
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	6-6"	8-0"	9-0"	9-5"	11-0"	12-3"	13-1"	13-8"	14-5"	16-0"
16"	NI-90	0-7"	0-8"	0-8"	1-9"	3-3"	3-8"	4-9"	6-5"	7-5"	8-0"	9-10"	11-11"	12-9"	13-9"	15-4"
	NI-90x	0-7"	0-8"	0-8"	1-9"	3-0"	3-6"	4-0"	5-0"	6-5"	7-9"	8-4"	10-2"	11-6"	12-0"	---

- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are pre-scored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

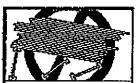
Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never stack building materials over unshooled I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

PRODUCT WARRANTY

Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Chantiers Chibougamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

1a NI blocking panel

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

Attach I-joist to top plate per detail 1b

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

1b Rim board

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

1d NI or rim board blocking panel per detail 1a

Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
2x Lumber	3-1/2" wide 5,500
1-1/8" Rim Board Plus	5-1/2" wide 8,500
	4,300
	6,600

Provide lateral bracing per detail 1a or 1b

1e Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

1f Joist attachment per detail 1b

Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

2-1/2" nails at 6" o.c. to top plate

NI blocking panel per detail 1a

1h Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer block tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.

** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

1i Top- or face-mount hanger

Double I-joist header

NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

Backer block required (both sides for face-mount hangers)

For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

1j Nordic Lam or Structural Composite Lumber (SCL)

For nailing schedules for multiple beams, see the manufacturer's recommendations.

Top- or face-mount hanger installed per manufacturer's recommendations

NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

1k 2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

Top-mount hanger installed per manufacturer's recommendations

1m Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Filler block per detail 1p

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1n Do not bevel-cut joist beyond inside face of wall

Attach I-joist per detail 1b

NOTE: Blocking required at bearing for lateral support, not shown for clarity.

1r Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.

NI blocking panel

OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Offset nails from opposite face by 6"

1/8" to 1/4" gap between top flange and filler block

NOTES:

- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
- The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

1s One 2-1/2" nail at top and bottom flange

2x4 min. (1/8" gap minimum)

Two 2-1/2" nails from each web to lumber piece, alternate on opposite side

One 2-1/2" nail one side only

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"

NOTES:

- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.125" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

WEB STIFFENERS

RECOMMENDATIONS:

- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A **bearing stiffener** is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A **load stiffener** is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

Flange width 2-1/2" or 3-1/2"

Approx. 2" I

1/8" - 1/4" Gap

(4) 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

No Gap

CONCENTRATED LOAD (Load stiffener)

END BEARING (Bearing stiffener)

Tight Joint No Gap

Gap

Tight Joint No Gap

STIFFENER SIZE REQUIREMENTS

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

Rim board or wood structural panel closure 3/4" minimum thickness; attach per detail 1b

NI blocking panel or rim board blocking, attach per detail 1g

Attach I-joist to plate per detail 1b

2-1/2" nails

3-1/2" min. bearing required

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate of all supports per detail 1b. Verify reinforced I-joist capacity.

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

(1) 2-1/2" nail top and bottom (typical)

Rim board joint

2-1/2" nails at 6" o.c. (typical)

Rim Board Joint at Corner

2-1/2" nails

1-1/2"

Rim board joint

1-1/2"

8b TOE-NAIL CONNECTION AT RIM BOARD

Rim board

Top or sole plate

30°

c/3

NORDIC STRUCTURES

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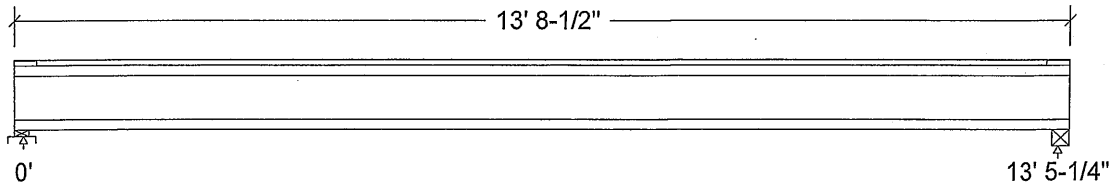
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	179		179
Live	358		358
Factored:			
Total	761		761
Bearing:			
Capacity			
Joist	1865		1869
Support	3971		-
Des ratio			
Joist	0.41		0.41
Support	0.19		-
Load case	#2		#2
Length	2-3/8		2-5/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.09		-

Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.

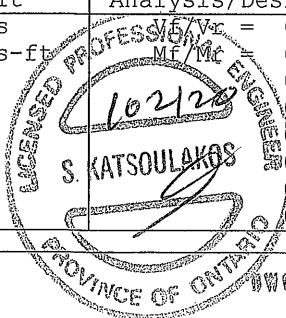
Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;

Total length: 13' 8-1/2"; Clear span: 13' 3-1/2"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 761	Vr = 1895	lbs	Vf/Vr = 0.40
Moment(+)	Mf = 2558	Mr = 4824	lbs-ft	Mf/Mr = 0.53
Perm. Defl'n	0.08 = < L/999	0.45 = L/360	in	0.18
Live Defl'n	0.17 = L/975	0.34 = L/480	in	0.49
Total Defl'n	0.25 = L/650	0.67 = L/240	in	0.37
Bare Defl'n	0.20 = L/795	0.45 = L/360	in	0.45
Vibration	Lmax = 13'-5.3	Lv = 16'-2.1	ft	0.83
Defl'n	= 0.028	= 0.050	in	0.55



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Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:E_Ieff = 275.77 lb-in² K= 4.94e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012**Design Notes:****AMENDED 2020**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



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NORDIC STRUCTURES

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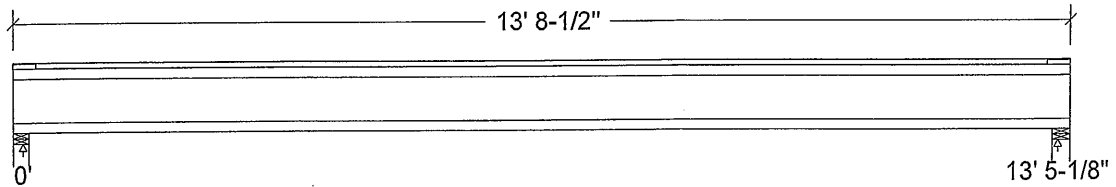
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

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Maximum Reactions (lbs) and Support Bearing (in):



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Factored:			
Total	761		761
Bearing:			
Capacity			
Joist	1865		1872
Support	3981		4756
Des ratio			
Joist	0.41		0.41
Support	0.19		0.16
Load case	#2		#2
Length	2-3/8		2-3/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.

Supports: All - Lumber Wall, No.1/No.2

Total length: 13' 8-1/2"; Clear span: 13' 3-3/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 761	Vr = 1895	lbs	Vf/Vr = 0.40
Moment (+)	Mf = 2554	Mr = 4824	lbs-ft	Mf/Mr = 0.53
Perm. Defl'n	0.08 = < L/999	0.45 = L/360	in	0.19
Live Defl'n	0.17 = L/953	0.34 = L/480	in	0.50
Total Defl'n	0.25 = L/635	0.67 = L/240	in	0.38
Bare Defl'n	0.20 = L/797	0.45 = L/360	in	0.45
Vibration	Lmax = 13'-5.1	Lv = 15'-9.3	ft	0.85
Defl'n	= 0.030	= 0.050	in	0.60



www.nw.taw/4429-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake

L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:EI_{eff} = 267.73 lb-in² K= 4.94e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



10420
 DWD NO. TAW 14429-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

1ST FLR FRAMING\Flush Beams\B14(i4434) (Flush Beam)

PASSED

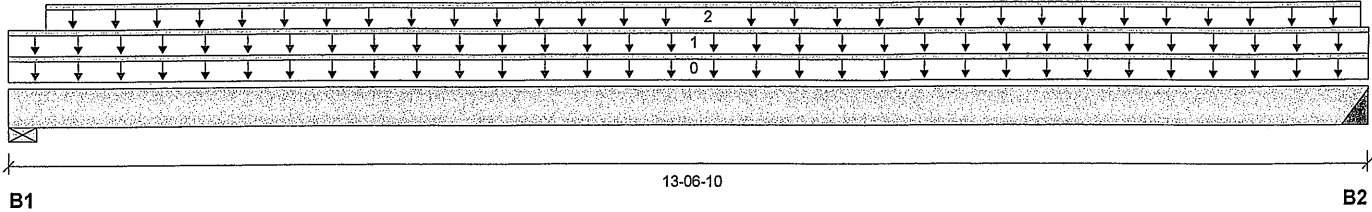
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

June 5, 2021 08:18:45

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7 SUNKEN MUDROOM OPTION .mmdl
Description: 1ST FLR FRAMING\Flush Beams\B14(i4434)
Specifier:
Designer: LBV
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	116 / 0	534 / 0		
B2, 4"	118 / 0	563 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-06-10	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	13-06-10	Top	17	9			n/a
2	4(i3154)	Unf. Lin. (lb/ft)	L	00-04-06	13-05-10	Top		65			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2511 ft-lbs	15093 ft-lbs	16.6%	0	06-08-08
End Shear	722 lbs	7521 lbs	9.6%	0	00-11-14
Total Load Deflection	L/1170 (0.135")	n/a	20.5%	4	06-08-08
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	06-08-08
Max Defl.	0.135"	n/a	n/a	4	06-08-08
Span / Depth	16.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Wall/Plate	2-3/8" x 3-1/2"	747 lbs	22.5%	11.3%	Spruce-Pine-Fir
B2 Hanger	4" x 3-1/2"	788 lbs	n/a	7.1%	HGUS410

Cautions

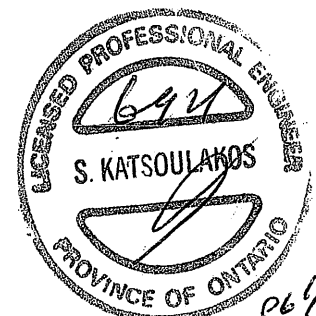
Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 13-04-04.

CONFORMS TO CBC 2012

AMENDED 2020



DWG NO. TAM 11766-21
STRUCTURAL
COMPONENT ONLY



BC CALC® Member Report
Build 7773

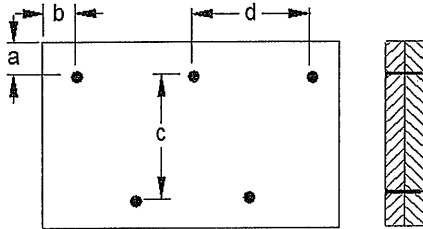
Dry | 1 span | No cant.

June 5, 2021 08:18:45

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7 SUNKEN MUDROOM OPTION .mmdl
Description: 1ST FLR FRAMING\Flush Beams\B14(i4434)
Specifier:
Designer: LBV
Company:

Connection Diagram: Full Length of Member



a minimum = 2" c = 5-1/2"
b minimum = 3" d = 6"

Connectors are: Nails

3 1/2" ARDOX SPIRAL



Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B15S(i4454) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

June 5, 2021 08:18:44

Build 7773

Job name:

File name: 38-7 SUNKEN MUDROOM OPTION .mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B15S(i4454)

City, Province, Postal Code: RICHMOND HILL

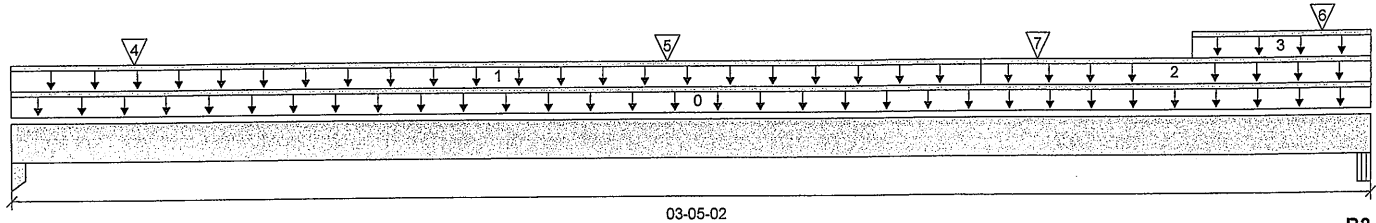
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 03-05-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	944 / 0	727 / 0		
B2, 4"	3011 / 0	2132 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-05-02	Top		10			00-00-00
1	1(i418)	Unf. Lin. (lb/ft)	L	00-00-00	02-05-02	Top		81			n/a
2	2(i417)	Unf. Lin. (lb/ft)	L	02-05-02	03-05-02	Top	299	231			n/a
3	2(i417)	Unf. Lin. (lb/ft)	L	02-11-10	03-05-02	Top	203	102			n/a
4	J1(i4392)	Conc. Pt. (lbs)	L	00-03-10	00-03-10	Top	242	121			n/a
5	J1(i4400)	Conc. Pt. (lbs)	L	01-07-10	01-07-10	Top	370	185			n/a
6	J1(i4448)	Conc. Pt. (lbs)	L	03-03-10	03-03-10	Top	254	127			n/a
7	-	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	2687	1914			n/a

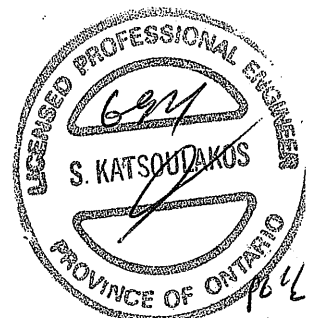
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3457 ft-lbs	23219 ft-lbs	14.9%	1	02-06-02
End Shear	4018 lbs	11571 lbs	34.7%	1	02-03-10
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	01-09-02
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	01-09-02
Max Defl.	0.007"	n/a	n/a	4	01-09-02
Span / Depth	3.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	1-3/4" x 3-1/2"	2325 lbs	46.7%	31.1%	Unspecified
B2 Beam	4" x 3-1/2"	7180 lbs	96.0%	42.0%	Unspecified

Cautions

Concentrated side load(s) 8 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



ENG NO. TAM 11762-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B15S(i4454) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

June 5, 2021 08:18:44

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7 SUNKEN MUDROOM OPTION .mmdl
Description: 1ST FLR FRAMING\Flush Beams\B15S(i4454)
Specifier:
Designer: LBV
Company:

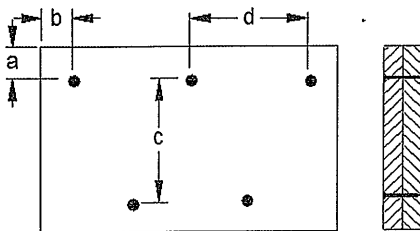
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020

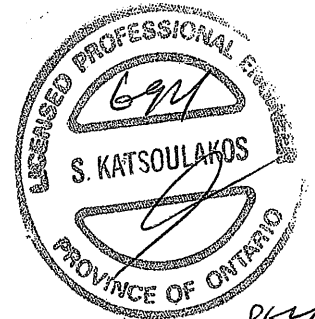
Connection Diagram: Full Length of Member



a minimum = 2" c = 5-1/2"
b minimum = 3" d = 8"

Calculated Side Load = 393.1 lb/ft
Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM 11767-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC® Member Report

Dry | 1 span | No cant.

October 7, 2020 08:28:31

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(i2840)

City, Province, Postal Code: RICHMOND HILL

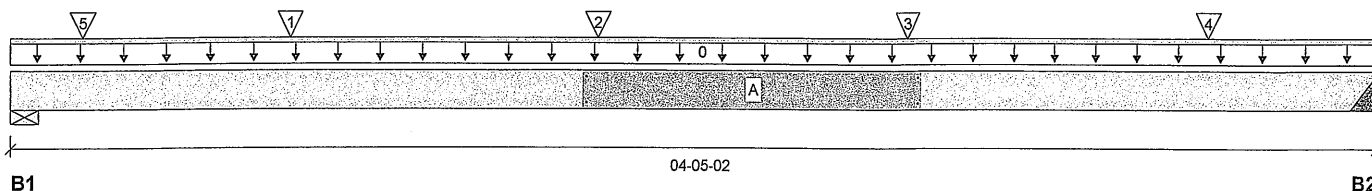
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2486 / 0	1375 / 0		
B2, 4"	949 / 0	499 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-02	Top		10			00-00-00
1	-	Conc. Pt. (lbs)	L	00-10-11	00-10-11	Top	446	246			n/a
2	-	Conc. Pt. (lbs)	L	01-10-08	01-10-08	Top	463	231			n/a
3	-	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	466	233			n/a
4	-	Conc. Pt. (lbs)	L	03-10-08	03-10-08	Top	424	213			n/a
5	E15(i385)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	1627	904			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1795 ft-lbs	23220 ft-lbs	7.7%	1	01-10-08
End Shear	1417 lbs	11571 lbs	12.2%	1	01-03-00
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	02-03-00
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-03-00
Max Defl.	0.006"	n/a	n/a	4	02-03-00
Span / Depth	4.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	5448 lbs	46.0%	23.2%	Spruce-Pine-Fir
B2	Hanger 4" x 3-1/2"	2046 lbs	n/a	12.0%	HGUS410

Cautions

Header for the hanger HGUS410 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



OWN NO. TAM 14430-20
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: 38-7.mmdl

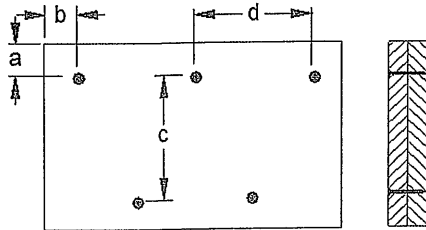
Description: 1ST FLR FRAMING\Flush Beams\B1(i2840)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5-1/2"
d = 8"

Calculated Side Load = 286.1 lb/ft

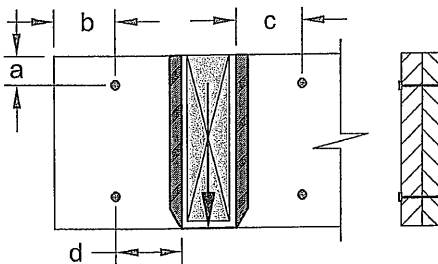
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 4+5+6+7



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



UWG NO. TAM 14430-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC® Member Report

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2(i2978)

City, Province, Postal Code: RICHMOND HILL

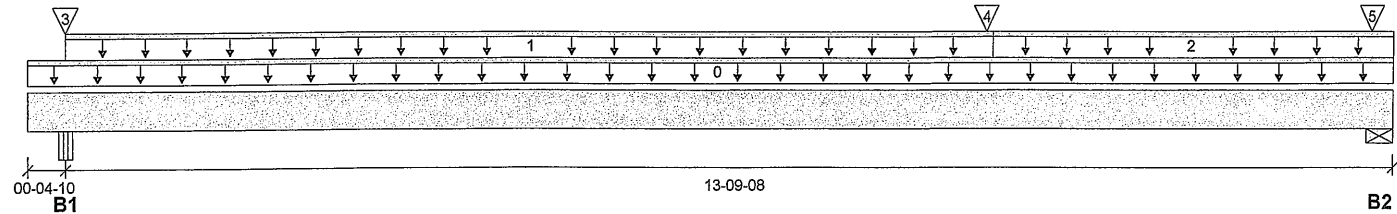
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:


Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	1066 / 0	605 / 0		
B2, 3-1/2"	548 / 0	326 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-02-02	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-04-10	09-11-06	Top	20	10			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-11-06	14-02-02	Top	9	4			n/a
3	-	Conc. Pt. (lbs)	L	00-04-10	00-04-10	Top	742	406			n/a
4	B6(i3135)	Conc. Pt. (lbs)	L	09-10-08	09-10-08	Top	640	329			n/a
5	E10(i382)	Conc. Pt. (lbs)	L	13-11-06	13-11-06	Top		12			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4715 ft-lbs	11610 ft-lbs	40.6%	3	09-10-08
Neg. Moment	-2 ft-lbs	-11610 ft-lbs	n/a	1	00-04-10
End Shear	1187 lbs	5785 lbs	20.5%	1	13-01-02
Cont. Shear	678 lbs	5785 lbs	11.7%	1	01-04-12
Total Load Deflection	L/435 (0.374")	n/a	55.2%	10	07-07-07
Live Load Deflection	L/684 (0.238")	n/a	52.7%	13	07-07-07
Total Neg. Defl.	2xL/1998 (-0.03")	n/a	n/a	10	00-00-00
Max Defl.	0.374"	n/a	n/a	10	07-07-07
Span / Depth	17.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 1-3/4"	2356 lbs	60.0%	21.0%	Unspecified
B2	Wall/Plate 3-1/2" x 1-3/4"	1229 lbs	32.6%	16.4%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

CONFORMS TO OBC 2012

AMENDED 2020



OBC NO. 14431-20

STRUCTURAL

COMPONENT ONLY

Disclosure

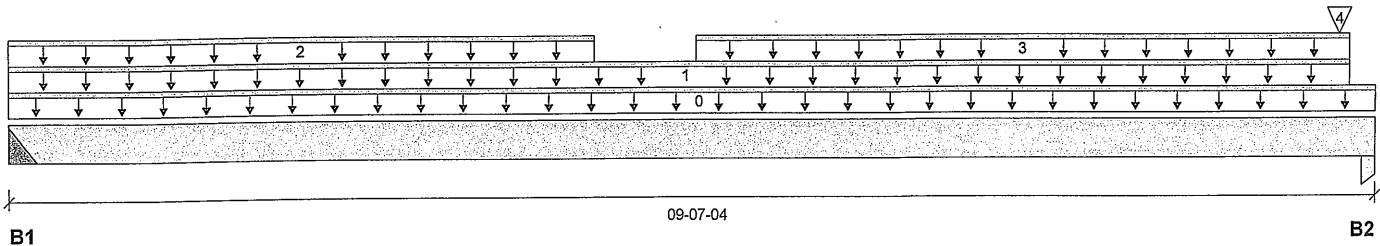
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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report
Build 7493

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B3(i2920)
Specifier:
Designer: LBV
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	186 / 0	116 / 0		
B2, 3-1/2"	862 / 0	463 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-07-04	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-05-00	Top	19	10			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-00-12	Top	18	9			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-09-04	09-05-00	Top	27	14			n/a
4	B6(i3135)	Conc. Pt. (lbs)	L	09-04-02	09-04-02	Top	659	338			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	981 ft-lbs	11610 ft-lbs	8.4%	1	05-00-01
End Shear	364 lbs	5785 lbs	6.3%	1	08-06-04
Total Load Deflection	L/999 (0.042")	n/a	n/a	4	04-09-04
Live Load Deflection	L/999 (0.026")	n/a	n/a	5	04-09-04
Max Defl.	0.042"	n/a	n/a	4	04-09-04
Span / Depth	11.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	3" x 1-3/4"	424 lbs	n/a	6.6%	HUS1.81/10
B2 Column	3-1/2" x 1-3/4"	1871 lbs	47.0%	25.0%	Unspecified

Cautions

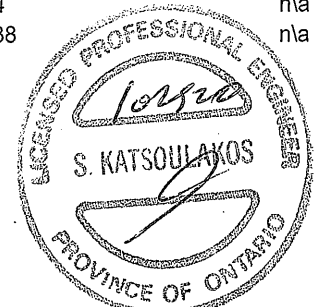
Header for the hanger HUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC® Member Report

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B4(i2842)

City, Province, Postal Code: RICHMOND HILL

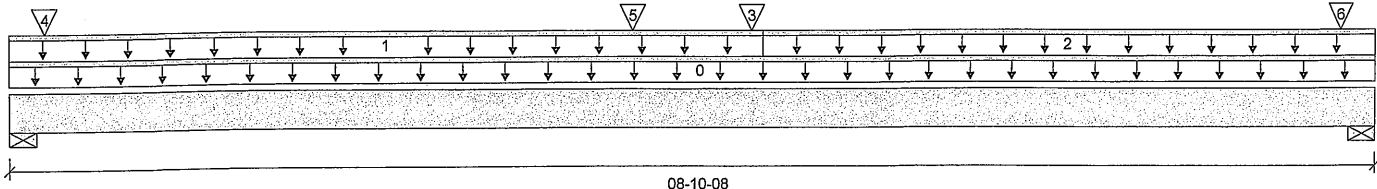
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	644 / 0	368 / 0		
B2, 3-1/2"	647 / 0	383 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-10-08	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-10-00	Top	27	13			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-10-00	08-10-08	Top	8	4			n/a
3	B5(i3132)	Conc. Pt. (lbs)	L	04-09-02	04-09-02	Top	1023	538			n/a
4	E14(i391)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		12			n/a
5	STAIR	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	102	51			n/a
6	E12(i384)	Conc. Pt. (lbs)	L	08-07-12	08-07-12	Top		26			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5286 ft-lbs	11610 ft-lbs	45.5%	1	04-09-02
End Shear	1386 lbs	5785 lbs	24.0%	1	07-09-08
Total Load Deflection	L/654 (0.151")	n/a	36.7%	4	04-06-13
Live Load Deflection	L/999 (0.098")	n/a	n/a	5	04-06-13
Max Defl.	0.151"	n/a	n/a	4	04-06-13
Span / Depth	10.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	1426 lbs	24.1%	12.1%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	1449 lbs	38.4%	19.4%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



ENG NO. TAM 14433-20

STRUCTURAL

COMPONENT ONLY

Disclosure

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BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

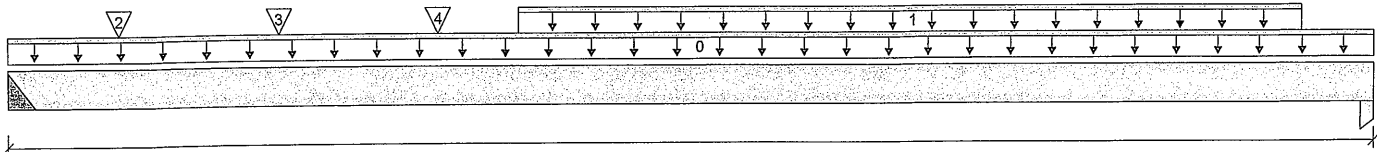
File name: 38-7.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(i3132)

Specifier:

Designer: LBV

Company:



B1

11-06-08

B2

Total Horizontal Product Length = 11-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1041 / 0	548 / 0		
B2, 1-3/4"	584 / 0	319 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-06-08	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	04-03-00	10-11-00	Top	91	46			n/a
2	J3(i2822)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	340	170			n/a
3	J3(i3159)	Conc. Pt. (lbs)	L	02-03-00	02-03-00	Top	391	195			n/a
4	J3(i2834)	Conc. Pt. (lbs)	L	03-07-00	03-07-00	Top	277	138			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4665 ft-lbs	11610 ft-lbs	40.2%	1	04-11-00
End Shear	2126 lbs	5785 lbs	36.8%	1	01-00-08
Total Load Deflection	L/448 (0.302")	n/a	53.5%	4	05-07-00
Live Load Deflection	L/688 (0.197")	n/a	52.3%	5	05-07-00
Max Defl.	0.302"	n/a	n/a	4	05-07-00
Span / Depth	14.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	2247 lbs	n/a	35.1%	HUS1.81/10
B2	Column 1-3/4" x 1-3/4"	1275 lbs	64.1%	34.1%	Unspecified

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

AMENDED 2020



BWG NO. 7AM 14434-20
STRUCTURAL
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Disclosure

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BC CALC® Member Report

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6(i3135)

City, Province, Postal Code: RICHMOND HILL

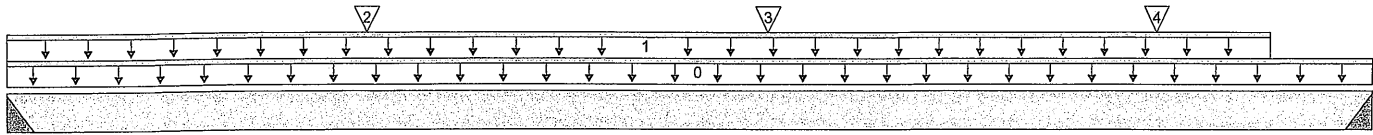
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



B1

03-05-06

B2

Total Horizontal Product Length = 03-05-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	661 / 0	339 / 0		
B2, 3"	637 / 0	328 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-05-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Top	240	120			n/a
2	J2(i2966)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	188	94			n/a
3	J2(i2885)	Conc. Pt. (lbs)	L	01-10-12	01-10-12	Top	191	96			n/a
4	J2(i2912)	Conc. Pt. (lbs)	L	02-10-12	02-10-12	Top	155	78			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1102 ft-lbs	11610 ft-lbs	9.5%	1	01-10-12
End Shear	1155 lbs	5785 lbs	20.0%	1	02-04-14
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	01-08-13
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-08-13
Max Defl.	0.005"	n/a	n/a	4	01-08-13
Span / Depth	3.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	1416 lbs	n/a	22.1%	HUS1.81/10
B2	Hanger 3" x 1-3/4"	1365 lbs	n/a	21.3%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



SWR NO. TAM 14435-20
STRUCTURAL
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BC CALC® Member Report

Dry | 1 span | No cant.

October 20, 2020 10:01:22

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B10(i3898)

City, Province, Postal Code: RICHMOND HILL

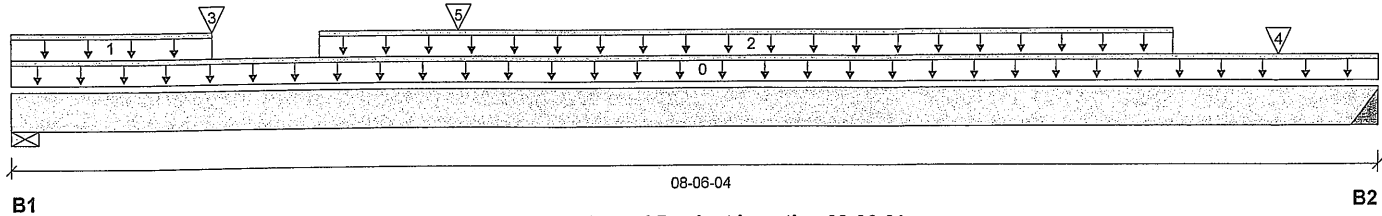
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 08-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/4"	1422 / 0	768 / 0		
B2, 4"	1069 / 0	577 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-06-04	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-02-12	Top	44	22			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-12	07-02-12	Top	226	111			n/a
3	-	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Top	582	293			n/a
4	J2(i3935)	Conc. Pt. (lbs)	L	07-10-12	07-10-12	Top	239	117			n/a
5	-	Conc. Pt. (lbs)	L	02-09-00	02-09-00	Top	400	228			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5391 ft-lbs	23220 ft-lbs	23.2%	1	03-10-12
End Shear	2968 lbs	11571 lbs	25.7%	1	01-02-04
Total Load Deflection	L/999 (0.085")	n/a	n/a	4	04-02-12
Live Load Deflection	L/999 (0.055")	n/a	n/a	5	04-02-12
Max Defl.	0.085"	n/a	n/a	4	04-02-12
Span / Depth	10.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/4" x 3-1/2"	3094 lbs	30.3%	15.3%	Spruce-Pine-Fir
B2	Hanger 4" x 3-1/2"	2324 lbs	n/a	13.6%	HGUS410

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



WWW.NO.TAM/4436-20

STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B10(i3898) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

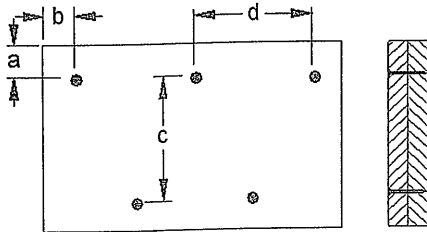
Dry | 1 span | No cant.

October 20, 2020 10:01:22

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B10(i3898)
Specifier:
Designer: LBV
Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 5-1/2"
d = 6"

Calculated Side Load = 645.0 lb/ft
Connectors are: 16d Nails
3-1/2" ARDOX SPIRAL



PG 2

DWG NO. YAW/4436-20
STRUCTURAL
COMPONENT ONLY

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Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11(i2902)

City, Province, Postal Code: RICHMOND HILL

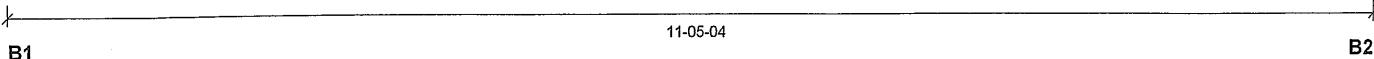
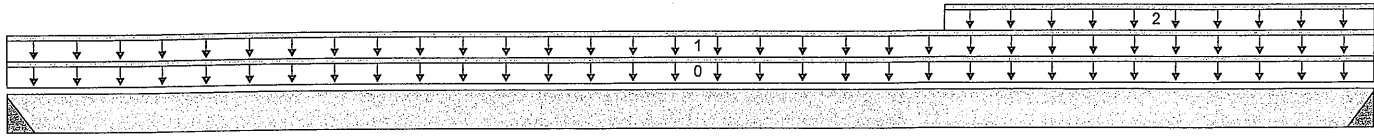
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 11-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	183 / 0	119 / 0		
B2, 3"	800 / 0	428 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-05-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-05-04	Top	9	4			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	07-09-04	11-05-04	Top	240	120			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2495 ft-lbs	11610 ft-lbs	21.5%	1	08-03-03
End Shear	1177 lbs	5785 lbs	20.4%	1	10-04-12
Total Load Deflection	L/992 (0.134")	n/a	24.2%	4	06-03-09
Live Load Deflection	L/999 (0.085")	n/a	n/a	5	06-03-09
Max Defl.	0.134"	n/a	n/a	4	06-03-09
Span / Depth	14.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	423 lbs	n/a	6.6%	HUS1.81/10
B2	Hanger 3" x 1-3/4"	1735 lbs	n/a	27.1%	HUS1.81/10

Cautions

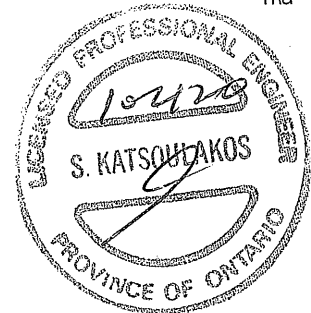
Header for the hanger HUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 14432-20
STRUCTURAL
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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B7(i3791)

City, Province, Postal Code: RICHMOND HILL

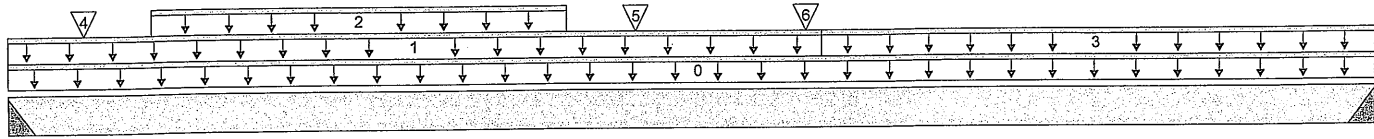
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



13-04-04
B1 Total Horizontal Product Length = 13-04-04 B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	935 / 0	544 / 0		
B2, 4"	848 / 0	504 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-04-04	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-10-02	Top	6	3			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-12	05-04-12	Top	73	37			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-10-02	13-04-04	Top	9	4			n/a
4	J5(i3919)	Conc. Pt. (lbs)	L	00-08-12	00-08-12	Top	81	41			n/a
5	J2(i3929)	Conc. Pt. (lbs)	L	06-00-12	06-00-12	Top	313	156			n/a
6	-	Conc. Pt. (lbs)	L	07-08-05	07-08-05	Top	998	527			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9630 ft-lbs	23220 ft-lbs	41.5%	1	07-04-12
End Shear	1968 lbs	11571 lbs	17.0%	1	01-01-08
Total Load Deflection	L/424 (0.363")	n/a	56.6%	4	06-08-12
Live Load Deflection	L/664 (0.231")	n/a	54.2%	5	06-08-12
Max Defl.	0.363"	n/a	n/a	4	06-08-12
Span / Depth	16.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	4" x 3-1/2"	2082 lbs	n/a	12.2%	HGUS410
B2 Hanger	4" x 3-1/2"	1902 lbs	n/a	11.1%	HGUS410

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



006 NO. TAM 14438-20
STRUCTURAL
COMPONENT ONLY

BC CALC® Member Report
Build 7493

Dry | 1 span | No cant.

October 20, 2020 10:01:22

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B7(i3791)
Specifier:
Designer: LBV
Company:

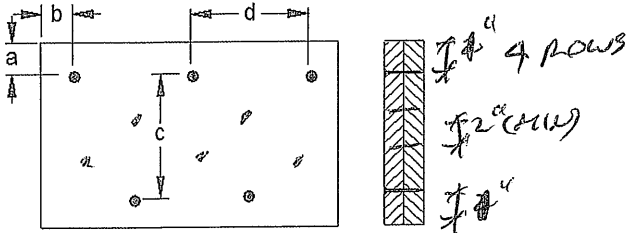
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"
c = 1-1/2"
d = 8"

Calculated Side Load = 1410.1 lb/ft
Connectors are: 16d ... 1 Nails

3-1/2" ARDOX SPIRAL



ENG NO. TAM1443B-20
STRUCTURAL
COMPONENT ONLY

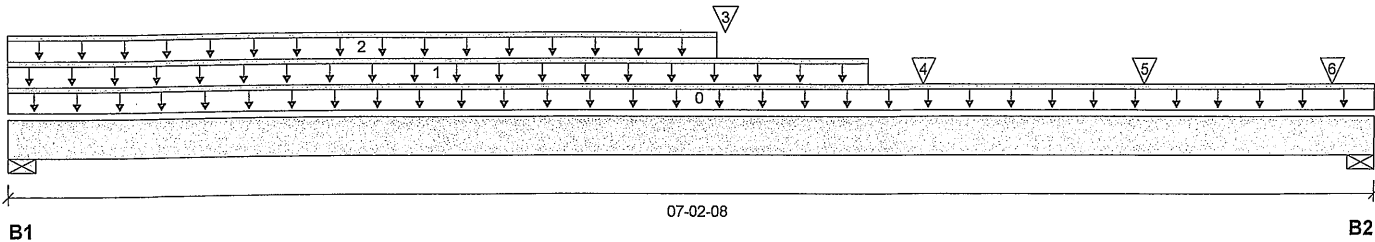
Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B8(i2881)
Specifier:
Designer: LBV
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	1612 / 0	877 / 0		
B2, 5-1/4"	2160 / 0	1158 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-02-08	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-05-12	Top	239	120			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-04	Top	17	9			n/a
3	-	Conc. Pt. (lbs)	L	03-08-13	03-08-13	Top	1103	627			n/a
4	-	Conc. Pt. (lbs)	L	04-09-07	04-09-07	Top	632	317			n/a
5	-	Conc. Pt. (lbs)	L	05-11-12	05-11-12	Top	632	317			n/a
6	J1(i3021)	Conc. Pt. (lbs)	L	06-11-12	06-11-12	Top	271	136			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8189 ft-lbs	23220 ft-lbs	35.3%	1	03-08-04
End Shear	4096 lbs	11571 lbs	35.4%	1	05-11-12
Total Load Deflection	L/999 (0.085")	n/a	n/a	4	03-07-02
Live Load Deflection	L/999 (0.055")	n/a	n/a	5	03-07-02
Max Defl.	0.085"	n/a	n/a	4	03-07-02
Span / Depth	8.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 2-3/4" x 3-1/2"	3514 lbs	59.4%	29.9%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/4" x 3-1/2"	4688 lbs	41.5%	20.9%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



OWN NO. TAM 14439-20
STRUCTURAL
COMPONENT ONLY

BC CALC® Member Report

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8(i2881)

City, Province, Postal Code: RICHMOND HILL

Specifier:

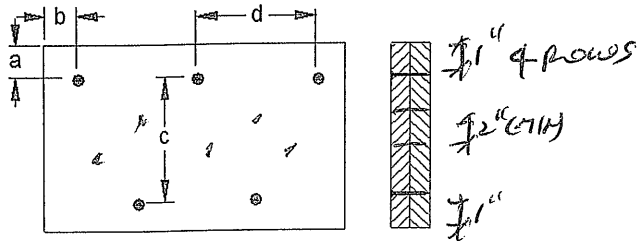
Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 1/2"
b minimum = 3"

c = 7 1/2"
d = 8"

Calculated Side Load = 1507.4 lb/ft

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM/4439-20

STRUCTURAL

COMPONENT ONLY

Disclosure

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Boise Cascade

**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Dropped Beams\B9DR(i3976) (Dropped Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

October 20, 2020 10:01:22

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B9DR(i3976)

City, Province, Postal Code: RICHMOND HILL

Specifiér:

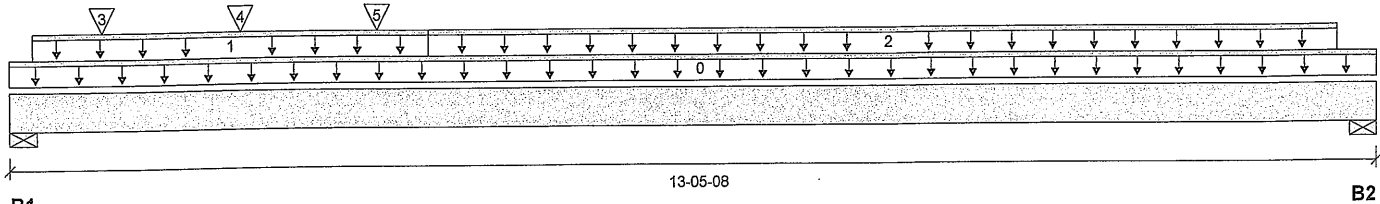
Customer:

Designer: LBV

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/4"	3445 / 0	1845 / 0		
B2, 5-1/4"	3597 / 0	1920 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-05-08	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-12	04-00-12	Top	283	142			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-00-12	13-00-12	Top	552	276			n/a
3	J1(i3895)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	316	158			n/a
4	J1(i3763)	Conc. Pt. (lbs)	L	02-02-12	02-02-12	Top	361	181			n/a
5	J1(i3912)	Conc. Pt. (lbs)	L	03-06-12	03-06-12	Top	316	158			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	23997 ft-lbs	55212 ft-lbs	43.5%	1	06-06-12
End Shear	6792 lbs	21696 lbs	31.3%	1	01-04-02
Total Load Deflection	L/451 (0.341")	n/a	53.3%	4	06-06-12
Live Load Deflection	L/691 (0.222")	n/a	52.1%	5	06-06-12
Max Defl.	0.341"	n/a	n/a	4	06-06-12
Span / Depth	12.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-1/4" x 5-1/4"	7474 lbs	25.1%	27.5%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/4" x 5-1/4"	7795 lbs	21.2%	23.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume unbraced length of Top: 01-02-12, Bottom: 01-02-12.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

AMENDED 2020



WWW.HO.TAM 1444020
 STRUCTURAL
 COMPONENT ONLY



Boise Cascade



Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B9DR(i3976) (Dropped Beam)

Dry | 1 span | No cant.

October 20, 2020 10:01:22

BC CALC® Member Report

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B9DR(i3976)

City, Province, Postal Code: RICHMOND HILL

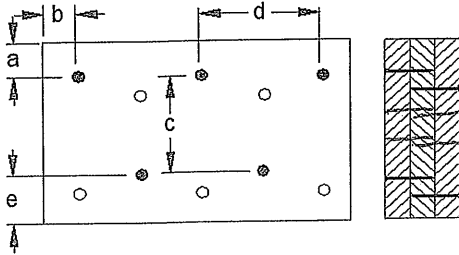
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member

a minimum = 1"
b minimum = 3"

c = 6-7/8"
d = 12"
e minimum = 3"

Nailing applies to both sides of the member

Connectors are: 1" Nails

3-1/2" ARDOX SPIRAL



BWC NO. TAM/444220

STRUCTURAL

COMPONENT ONLY

Disclosure

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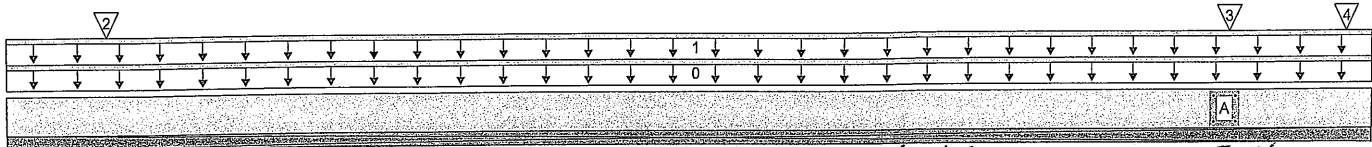
BC CALC® Member Report
Build 0

Dry | 1 span | No cant.

October 20, 2020 10:01:22

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B20(i4005)
Specifier:
Designer: LBV
Company:



FULLY SUPPORTED BOTTOM ENDS ALONG FULL WIDTH AND ALONG FULL LENGTH
Total Horizontal Product Length = 14-03-12

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-03-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	E22(i438)	Unf. Lin. (lb/ft)	L	00-00-00	14-03-12	Top		81			n/a
2	B10(i3898)	Conc. Pt. (lbs)	L	01-00-04	01-00-04	Top	1038	561			n/a
3	-	Conc. Pt. (lbs)	L	12-09-10	12-09-10	Top	1050	606			n/a
4	J1(i3804)	Conc. Pt. (lbs)	L	14-00-08	14-00-08	Top	279	139			n/a

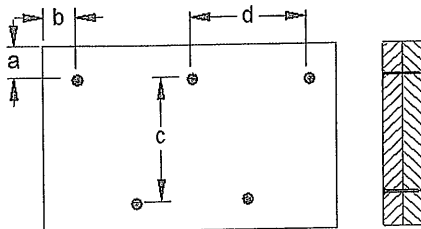
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Dist. Load	126.09 lb/ft	37469.25 lb/ft	0.3%		
Conc. Load	2333 lbs	16813 lbs	13.9%		

Cautions

Concentrated side load(s) 3 are closer than 18" from end of member. Please consult a technical representative or Professional of Record. *OK*

Connection Diagram: Full Length of Member



a minimum = 2" c = 5-1/2"
b minimum = 3" d = 12"

Calculated Side Load = 296.1 lb/ft
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 4



WWW.HO.TAM/444/-20
STRUCTURAL
COMPONENT ONLY



Boise Cascade



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

2ND FLR FRAMING\Flush Beams\B20(i4005) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 20, 2020 10:01:22

Build 0

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B20(i4005)

City, Province, Postal Code: RICHMOND HILL

Specifier:

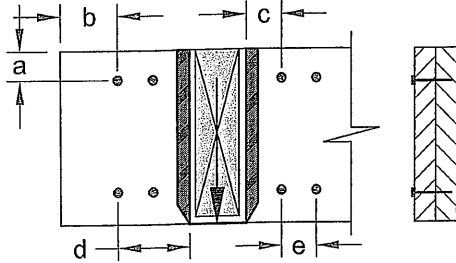
Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:

Connection Diagrams: Concentrated Side Loads



a minimum = 2"
 b minimum = 4"
 c minimum = 4"
 d maximum = 12"
 e minimum = 4"
 Connectors are:
 Nails

CONFORMS TO OBC 2012

AMENDED 2020

3-1/2" ARDOX SPIRAL



BVG NO. TAW/4491-20

STRUCTURAL

COMMENT ONLY

Disclosure

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BC CALC® Member Report

Build 7493

Job name:

File name: 38-7 SUNKEN .mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1S(i3287)

City, Province, Postal Code: RICHMOND HILL

Specifier:

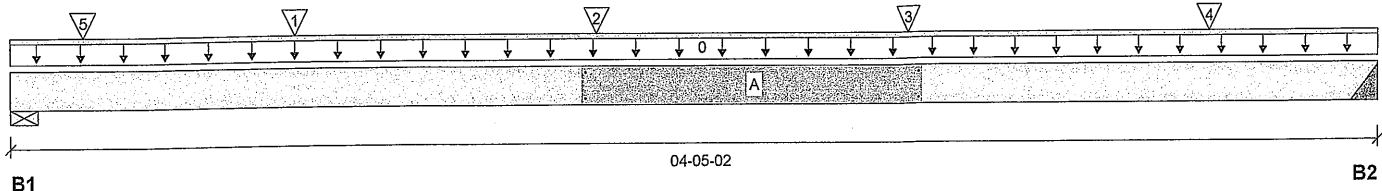
Customer:

Designer: LBV

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-05-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	396 / 0	259 / 0		
B2, 4"	296 / 0	171 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-02	Top		10			00-00-00
1	B3S(i3361)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	Top	159	97			n/a
2	J2(i3325)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	Top	150	75			n/a
3	J2(i3411)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	152	76			n/a
4	J2(i3280)	Conc. Pt. (lbs)	L	03-10-08	03-10-08	Top	124	62			n/a
5	E15(i385)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	107	77			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	610 ft-lbs	23220 ft-lbs	2.6%	1	01-10-08
End Shear	490 lbs	11571 lbs	4.2%	1	01-03-00
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-03-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-03-00
Max Defl.	0.002"	n/a	n/a	4	02-03-00
Span / Depth	4.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	918 lbs	7.8%	3.9%	Spruce-Pine-Fir
B2	Hanger 4" x 3-1/2"	657 lbs	n/a	3.8%	HGUS410

Cautions

Header for the hanger HGUS410 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM14443-20
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: 38-7 SUNKEN .mmdl

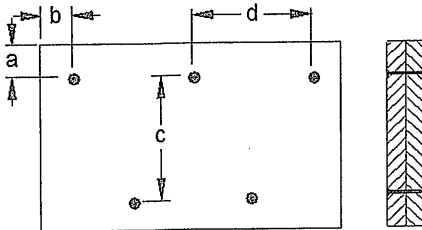
Description: 1ST FLR FRAMING\Flush Beams\B1S(i3287)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5-1/2"
d = 2 1/2"

Calculated Side Load = 179.9 lb/ft

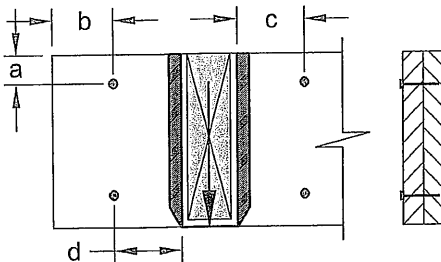
Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 3+4



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"
Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



ENG NO. 10420
STRUCTURAL
COMPONENT ONLY

Disclosure

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Build 7493

Job name:

File name: 38-7 SUNKEN .mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2S(i3401)

City, Province, Postal Code: RICHMOND HILL

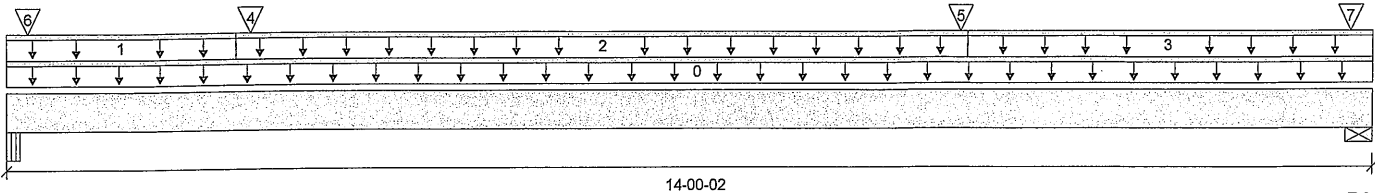
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 14-00-02

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	511 / 0	320 / 0		
B2, 3-1/2"	538 / 0	323 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-00-02	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-03-14	Top	9	4			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-03-14	09-09-06	Top	20	10			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	09-09-06	14-00-02	Top	9	4			n/a
4	B1S(i3287)	Conc. Pt. (lbs)	L	02-05-10	02-05-10	Top	267	153			n/a
5	B6S(i3557)	Conc. Pt. (lbs)	L	09-08-08	09-08-08	Top	574	295			n/a
6	1(i418)	Conc. Pt. (lbs)	L	00-02-10	00-02-10	Top		12			n/a
7	E10(i382)	Conc. Pt. (lbs)	L	13-09-06	13-09-06	Top		12			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4641 ft-lbs	11610 ft-lbs	40.0%	1	09-08-08
End Shear	1169 lbs	5785 lbs	20.2%	1	12-11-02
Total Load Deflection	L/406 (0.397")	n/a	59.2%	4	07-05-06
Live Load Deflection	L/639 (0.252")	n/a	56.3%	5	07-05-06
Max Defl.	0.397"	n/a	n/a	4	07-05-06
Span / Depth	16.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 1-3/4"	1166 lbs	29.7%	10.4%	Unspecified
B2	Wall/Plate 3-1/2" x 1-3/4"	1211 lbs	32.1%	16.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

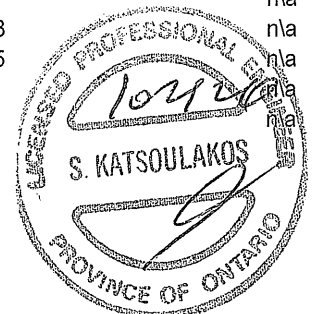
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. FAM 14444-20

STRUCTURAL

COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Build 7493

Job name:

File name: 38-7 SUNKEN .mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3S(i3361)

City, Province, Postal Code: RICHMOND HILL

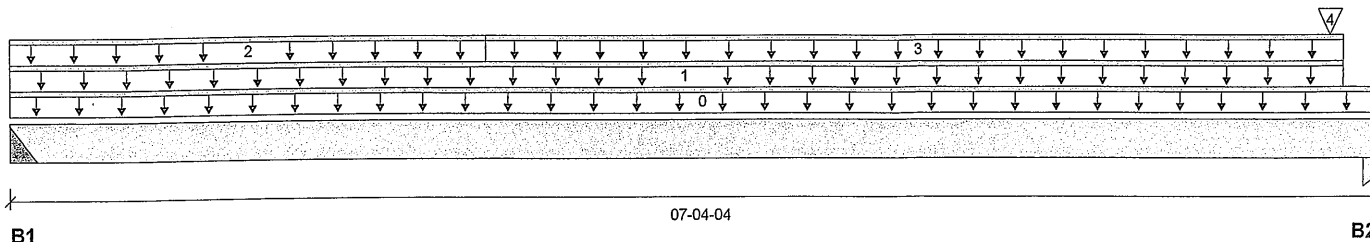
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:


Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	151 / 0	93 / 0		
B2, 3-1/2"	760 / 0	406 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-04-04	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-02-00	Top	19	10			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-06-04	Top	18	9			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-06-04	07-02-00	Top	27	14			n/a
4	B6S(i3557)	Conc. Pt. (lbs)	L	07-01-02	07-01-02	Top	600	308			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	607 ft-lbs	11610 ft-lbs	5.2%	1	03-09-00
End Shear	267 lbs	5785 lbs	4.6%	1	06-03-04
Total Load Deflection	L/999 (0.015")	n/a	n/a	4	03-08-05
Live Load Deflection	L/999 (0.009")	n/a	n/a	5	03-08-05
Max Defl.	0.015"	n/a	n/a	4	03-08-05
Span / Depth	8.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	3" x 1-3/4"	343 lbs	n/a	5.4%	HUS1.81/10
B2 Column	3-1/2" x 1-3/4"	1648 lbs	41.4%	22.1%	Unspecified

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

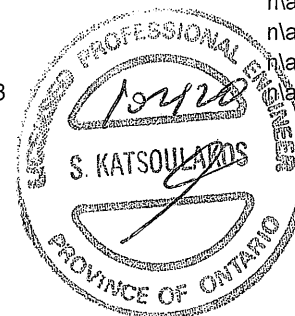
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM 1444520
 STRUCTURAL
 COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCi®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Build 7493

Job name:

File name: 38-7 SUNKEN .mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6S(i3557)

City, Province, Postal Code: RICHMOND HILL

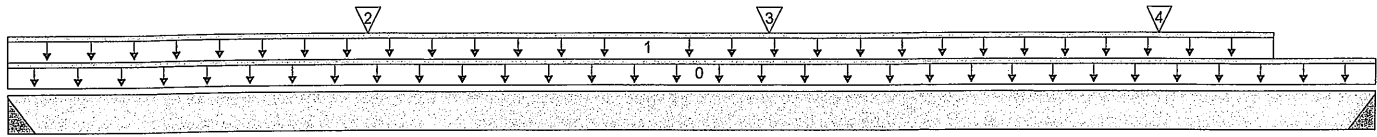
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



B1

03-05-06

B2

Total Horizontal Product Length = 03-05-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	603 / 0	310 / 0		
B2, 3"	570 / 0	293 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-05-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Top	240	120			n/a
2	J2(i3325)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	144	72			n/a
3	J2(i3411)	Conc. Pt. (lbs)	L	01-10-12	01-10-12	Top	146	73			n/a
4	J2(i3280)	Conc. Pt. (lbs)	L	02-10-12	02-10-12	Top	119	59			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	984 ft-lbs	11610 ft-lbs	8.5%	1	01-10-12
End Shear	1060 lbs	5785 lbs	18.3%	1	02-04-14
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	01-08-13
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-08-13
Max Defl.	0.005"	n/a	n/a	4	01-08-13
Span / Depth	3.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	1292 lbs	n/a	20.2%	HUS1.81/10
B2	Hanger 3" x 1-3/4"	1222 lbs	n/a	19.1%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

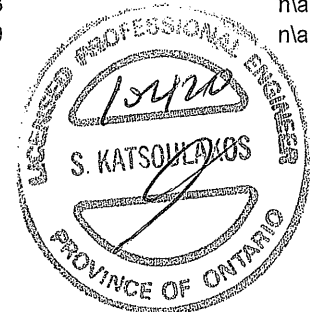
Resistance Factor phi has been applied to all presented results per CSA O86.

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



OWN NO. TAM 1444620

STRUCTURAL

COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

CONFORMS TO OBC 2012

BC CALC® Member Report

Dry | 1 span | No cant.

October 7, 2020 09:15:09

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B12A(i3206)

City, Province, Postal Code: RICHMOND HILL

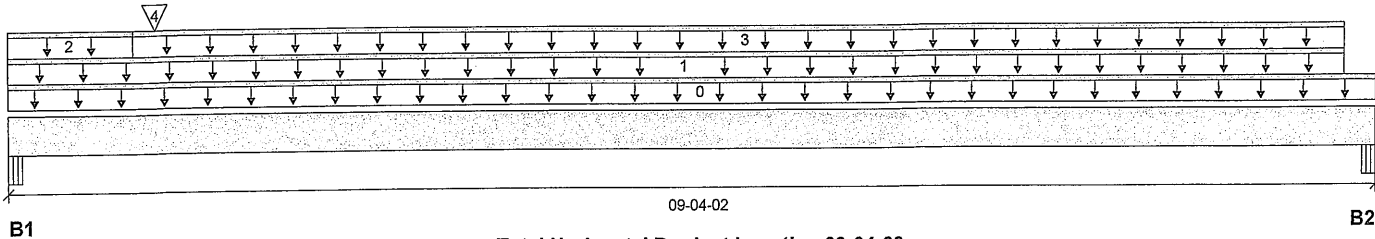
Specifier:

Customer:

Designer: LBV

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/8"	869 / 0	1395 / 0	1125 / 0	
B2, 5-1/4"	296 / 0	268 / 0	92 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-02	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-01-08	Top	27	14			n/a
2	E26(i435)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-00	Top		108	111		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-10-00	09-01-08	Top	26	13			n/a
4	-	Conc. Pt. (lbs)	L	00-11-12	00-11-12	Top	695	1247	1117		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2871 ft-lbs	23220 ft-lbs	12.4%	1	02-02-12
End Shear	3368 lbs	11571 lbs	29.1%	13	01-01-10
Total Load Deflection	L/999 (0.059")	n/a	n/a	35	04-02-04
Live Load Deflection	L/999 (0.035")	n/a	n/a	51	04-02-04
Max Defl.	0.059"	n/a	n/a	35	04-02-04
Span / Depth	11.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	4-1/8" x 3-1/2"	4300 lbs	69.7%	24.4%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	871 lbs	11.1%	3.9%	Unspecified

Cautions

Concentrated side load(s) 10,11,12,13,14 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

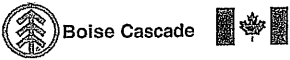
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



OWG NO. TAM/4447-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B12A(i3206) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

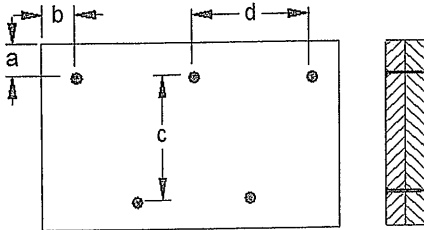
Dry | 1 span | No cant.

October 7, 2020 09:15:09

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B12A(i3206)
Specifier:
Designer: LBV
Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 5-1/2"
d = 3"

Connectors are: 1 Nails
3-1/2" ARDOX SPIRAL



DWG NO. TAM 1444220
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Dry | 1 span | No cant.

October 7, 2020 09:15:09

Build 7493

Job name:

File name: 38-7.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13A(i3222)

City, Province, Postal Code: RICHMOND HILL

Specifier:

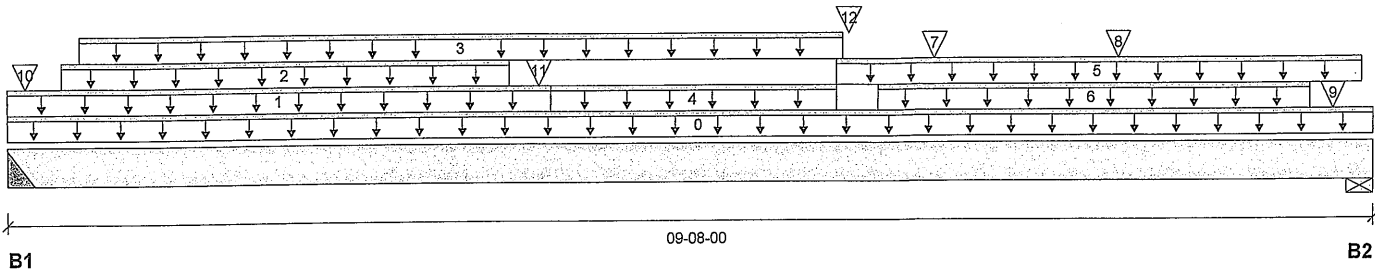
Customer:

Designer: LBV

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	714 / 0	1232 / 0	1104 / 0	
B2, 5-1/2"	858 / 0	1389 / 0	1141 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-08-00	Top		10			00-00-00
1	E33(i3202)	Unf. Lin. (lb/ft)	L	00-00-00	03-09-08	Top		81			n/a
2	E33(i3202)	Unf. Lin. (lb/ft)	L	00-04-08	03-06-00	Top		56	129		n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-00	05-10-00	Top	168	84			n/a
4	E34(i3232)	Unf. Lin. (lb/ft)	L	03-09-08	05-09-08	Top		41			n/a
5	E25(i433)	Unf. Lin. (lb/ft)	L	05-09-08	09-07-00	Top		81			n/a
6	E25(i433)	Unf. Lin. (lb/ft)	L	06-01-00	09-02-08	Top		56	129		n/a
7	J4(i3230)	Conc. Pt. (lbs)	L	06-06-00	06-06-00	Top	225	113			n/a
8	J4(i3228)	Conc. Pt. (lbs)	L	07-10-00	07-10-00	Top	225	113			n/a
9	-	Conc. Pt. (lbs)	L	09-04-08	09-04-08	Top	221	382	570		n/a
10	E33(i3202)	Conc. Pt. (lbs)	L	00-01-08	00-01-08	Top		216	536		n/a
11	E33(i3202)	Conc. Pt. (lbs)	L	03-08-08	03-08-08	Top		93	170		n/a
12	E25(i433)	Conc. Pt. (lbs)	L	05-10-08	05-10-08	Top		90	163		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6543 ft-lbs	23220 ft-lbs	28.2%	1	05-02-00
End Shear	2781 lbs	11571 lbs	24.0%	1	01-01-08
Total Load Deflection	L/711 (0.152")	n/a	33.8%	35	04-10-00
Live Load Deflection	L/999 (0.087")	n/a	n/a	51	04-10-00
Max Defl.	0.152"	n/a	n/a	35	04-10-00
Span / Depth	11.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	3909 lbs	n/a	22.9%	HGUS410
B2	Wall/Plate 5-1/2" x 3-1/2"	4307 lbs	36.4%	18.3%	Spruce-Pine-Fir

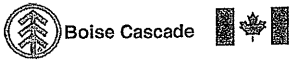
Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



OWG NO. TAM/4448-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B13A(i3222) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

Dry | 1 span | No cant.

October 7, 2020 09:15:09

Job name:
Address:
City, Province, Postal Code: RICHMOND HILL
Customer:
Code reports: CCMC 12472-R

File name: 38-7.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B13A(i3222)
Specifier:
Designer: LBV
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected product's verification.

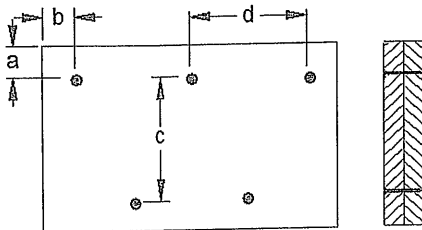
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO NBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 5-1/2"
d = 8"

Calculated Side Load = 478.8 lb/ft

Connectors are: 1 Nails
3-1/2" ARDOX SPIRAL



DWG NO. FAM 14448-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

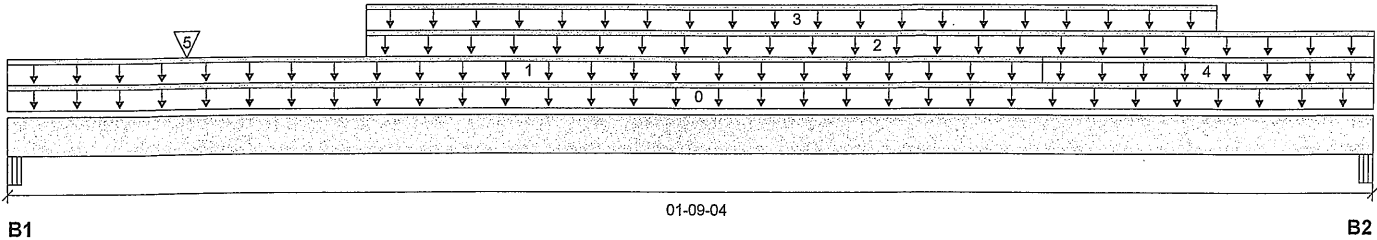
BC CALC® Member Report
 Build 7493

Dry | 1 span | No cant.

October 7, 2020 09:49:36

Job name:
 Address:
 City, Province, Postal Code: RICHMOND HILL
 Customer:
 Code reports: CCMC 12472-R

File name: 38-7 EL B, EL C.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B12(i3620)
 Specifier:
 Designer: LBV
 Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	18 / 0	97 / 0	86 / 0	
B2, 5-1/4"	19 / 0	110 / 0	88 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-09-04	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-04-00	Top	20	10			n/a
2	E37(i3450)	Unf. Lin. (lb/ft)	L	00-05-08	01-09-04	Top		81			n/a
3	E37(i3450)	Unf. Lin. (lb/ft)	L	00-05-08	01-06-12	Top		31	130		n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-04-00	01-09-04	Top	23	11			n/a
5	E36(i3451)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		31	30		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	49 ft-lbs	23220 ft-lbs	0.2%	13	00-10-10
End Shear	136 lbs	11571 lbs	1.2%	23	01-02-12
Span / Depth	1.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	268 lbs	3.4%	1.2%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	288 lbs	3.7%	1.3%	Unspecified

Notes

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

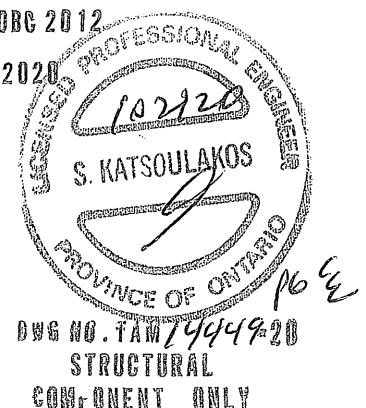
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

AMENDED 2020



DWG NO. TAM 1994920
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: 38-7 EL B, EL C.mmdl

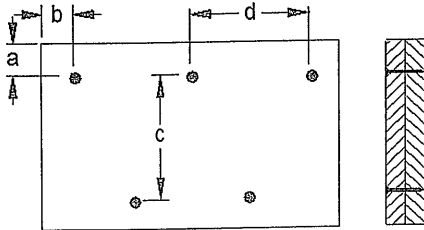
Description: 2ND FLR FRAMING\Flush Beams\B12(i3620)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member




a minimum = 2"

b minimum = 3"

c = 5-1/2"

d = 8"

Connectors are:  Nails
3-1/2" ARDOX SPIRAL

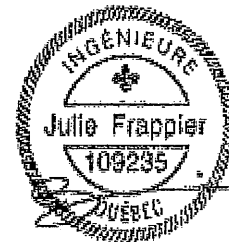
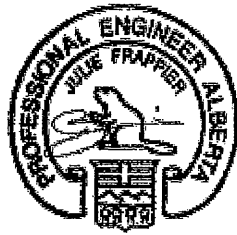


HWB NO. YAM 14449-20
**STRUCTURAL
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Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



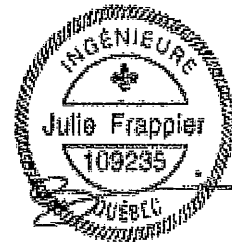
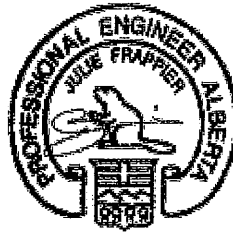
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

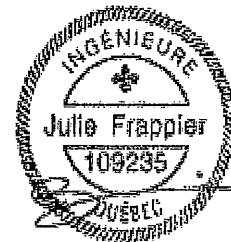
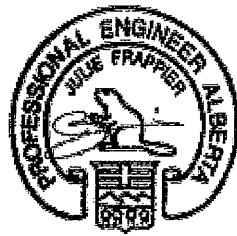
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
14"	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
16"	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
	NI-60	22'-1"	20'-7"	19'-7"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
14"	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
16"	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"
	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

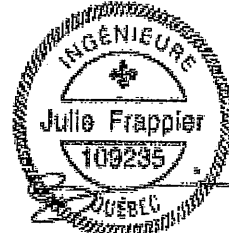
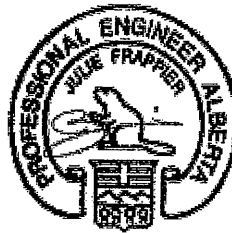
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
14"	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
16"	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
11-7/8"	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
14"	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
16"	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

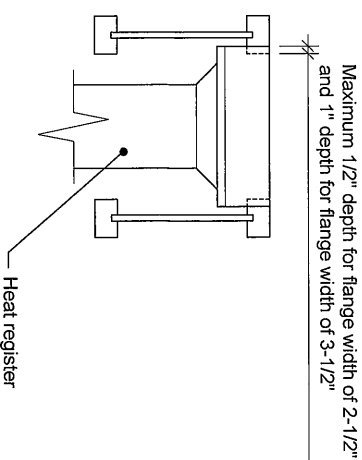
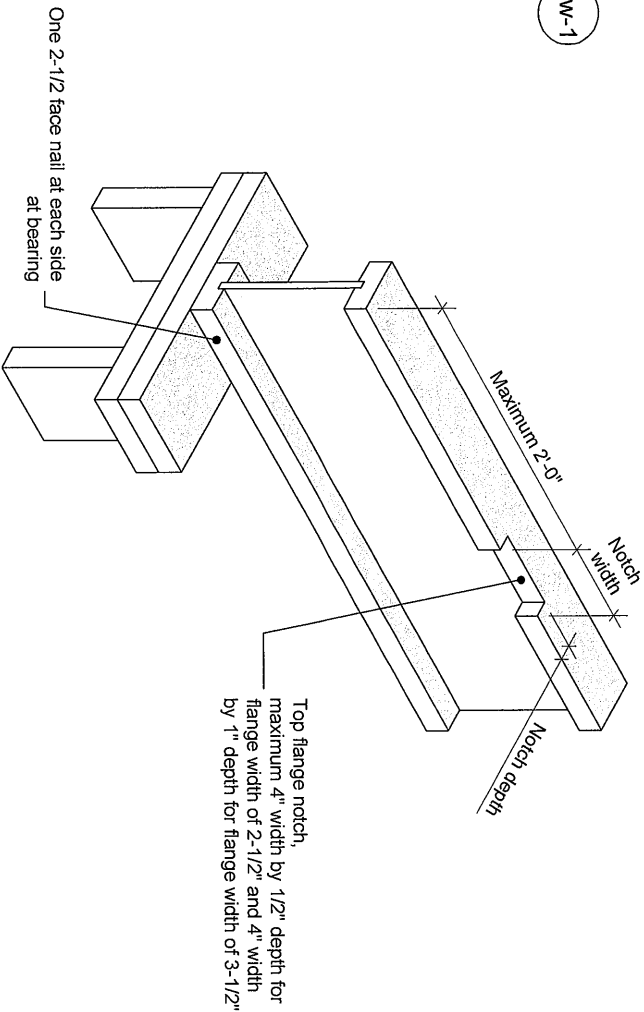
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	15'-10"
11-7/8"	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
14"	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"
	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"
11-7/8"	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"
	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
14"	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"
	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

1w-1



- Notes:**
1. Blocking required at bearing for lateral support, not shown for clarity.
 2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2'-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3'-1/2 inches.
 3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
 4. For other applications, contact Nordic Structures.

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2'-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

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TITLE
Notch in I-joist for Heat Register

CATEGORY
I-joist - Typical Floor Framing and Construction Details

DOCUMENT

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DATE
2018-04-10

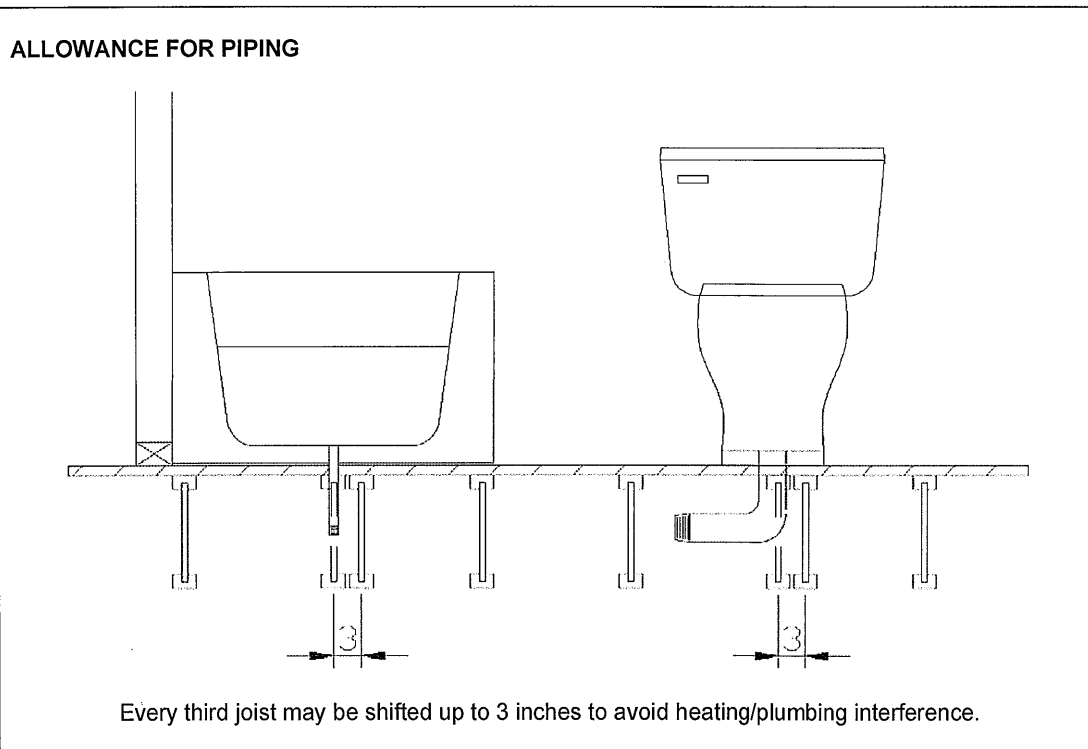
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Allowance for Piping (Installation Notes)

The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced for shorter spans; contact your distributor for additional information.

The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.



Revised April 12, 2012